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*Illustrated.

At the recent meeting of the American Association of Passenger Traffic Officers a committee report was adopted recommending that the various territorial passenger associations give serious consideration to a plan for imposing a 10-cent terminal charge for the checking of baggage. Such a plan has been suggested before, and, as the *Railway Age Gazette* has pointed out, there are numerous reasons why there should be a difference in the charges paid by those for whom the railroad checks baggage and those for whom it does not. European roads generally charge for handling all baggage in excess of a very small free allowance, and certainly the passenger for whom the railroad checks and handles a 150-lb. trunk receives a greater service than the man who cares for his own hand baggage enroute, but checks it at a parcel room at either end of his journey for a charge of 10 cents for 24 hours or less. But there is an additional reason now in justification of a charge for baggage that did not formerly exist. The Cummins amendment has increased the liability of the railroads for loss or damage to baggage, and in order to protect themselves the eastern roads are requiring a declaration of value and imposing an insurance charge if the value exceeds $100. This declaration costs the railroads something for clerical work and has aroused a good deal of complaint as being a nuisance to the passenger. It was the thought of members of the committee of passenger officers that the charge for checking baggage might be proposed as a substitute for the declaration of value and to cover not only a part of the expense of handling baggage but the insurance element. The adoption of a baggage charge would undoubtedly be attended with the difficulty usually experienced in attempting to withdraw a concession that has once been granted, but now that the railroads have something to trade, the plan might appeal to many who object strongly to the declaration of value.

**Proposed Charge for Checking Baggage**

There recently have appeared in the *Railway Age Gazette* several letters and articles complaining about and criticizing the position in which a large majority of general office clerks on railways find themselves. There is ample justification for many of these complaints and criticisms. The work of general office clerks is of no small importance, and the total wages paid to them exceed the salaries paid to the officers. The total salaries paid to all officers of Classes 1 and 2 roads in the year ended June 30, 1913, was $42,776,142. The total wages paid to general office clerks in the same year amounted to $69,443,296. The number of general office clerks in that year was no less than 84,267. Considering the number of these employees, the amount of their total compensation and the importance of their work, it is plain that they should be so selected, organized and promoted as to get the very best results from their services. This should be done both out of consideration for the rights and interests of the employees and the welfare of the railways. The clerks are not organized into unions, and this imposes on the managements a special duty to spare no effort to treat them fairly and develop among them the greatest loyalty and efficiency. If there is any railway in the country which has lived up to these principles it has succeeded in keeping the fact a profound secret. Many of the complaints and criticisms we have published, while justified, have been chiefly destructive in their character. We publish in another column this week a letter from a railway officer who has had experience in handling general offices and who suggests a constructive plan for improving the position of the clerk. His plan may possibly not be the best that could be suggested, but it has the merit of having been tried and of having worked successfully. His letter is therefore entitled to wide reading and careful consideration.

**A Plan for Improving the Railway Clerk**

## THE REVIVAL OF BUSINESS

MOST of the discussion about railroads for a long time has been centered around their troubles. Attention is now being directed to the more favorable aspects of their situation, and many railroad officers whose chief concern for years has been to reduce expenses wherever possible and sometimes where it has seemed impossible, now find their hands filled with the work of handling the business offered them.

Evidence is accumulating that the tide has turned and that general business is rapidly returning to a condition of prosperity, with good consequent effect on the welfare of the railroads and the railroad supply industry. After a long depression, followed by a considerable period of uncertainty, the change has come so suddenly as to leave some doubt for a time as to its permanency. However, while allowance must be

made for the extraordinary activity in certain lines, such as the automobile business, and particularly for the stimulating effect of the large orders for war materials, the upward tendency during the past month or so has been so marked that more confidence is being manifested than at any time since the war began. This confidence is reflected not only in the statements of bankers and other prominent business men regarding the rapid improvement in general business, but in the reports of railroad traffic and earnings and the large orders for rails, locomotives, cars and other supplies that have been placed during the past few weeks by the railroads.

For August the railroads of the country reported an increase in total operating revenues of 1.3 per cent, and in net operating revenues of 10.2 per cent, per mile. This showing was made possible, of course, by the continuance of the program of drastic economy. Preliminary reports from large roads operating 117,734 miles compiled by the Interstate Commerce Commission indicate an increase in total operating revenues per mile from $1,219 in September, 1914, to $1,295 in September, 1915, or 6.2 per cent, and in net operating revenues per mile from $408 to $484, or 18 per cent. This also represents a gain, in both gross and net, over September, 1913, when a similar compilation by the commission showed that total operating revenues were $1,235 per mile and net operating revenues were $397 per mile, and over September, 1912, when total operating revenues were $1,200 and net operating revenues $424. The gross earnings reports of 32 roads available for October show increases of 8.63 for the first week, 11.98 for the second and 17.49 for the third over 1914. Any enthusiasm aroused by comparisons with 1914 should be tempered by recollection of the exceedingly poor showing made in that year; but net gains as compared with both 1912 and 1913 are gratifying indeed. In September the gross earnings of the Pennsylvania Railroad were $20,817,361, the largest in any one month in the company's history, except August and October, 1913, and the net earnings, $7,282,021, were the largest in any month in its history.

The earnings figures are reinforced by the increasing frequency of reports of scarcity of equipment and congestion of traffic, and by the fact that several of the largest railroads in the country have in the past few days reported record car loading figures. The Santa Fe in the week ending October 30 had the largest loaded car movement in its history, the Burlington on October 17 and 18 set a new record for 48 hours; the Pennsylvania's middle division in October broke its record for a month, and the Missouri Pacific in October had the heaviest freight traffic in its history.

The report on surpluses and shortages of freight cars issued by the American Railway Association for October 1 showed a surplus of 88,061 cars, as compared with 191,309 on September 1, and 133,382 on October 1, 1914. There was also a shortage of 9,762 cars. The statement for November 1, which is just out, shows a large part of this surplus wiped out and a considerable increase in the shortage, which makes the net surplus less than it has been at any time since October, 1913. Reports of increasing freight traffic come from all sections of the country, western roads feeling particularly the effects of the steady growth in the grain movement, which promises to be greater than ever before. The eastern roads are profiting by the heavy shipments of iron and steel, as well as of manufactured goods, which indicate a large gain in general business during the past two or three weeks, which is also being felt by the western roads. There have also been heavy shipments of ore. In the South, while the cotton crop is smaller than usual, its value will be higher than that of last year, and as a result of the more diversified character of that territory's agriculture during the year conditions are showing a marked improvement. The traffic of the transcontinental lines is being considerably stimulated by the closing of the Panama Canal since September 20 by slides, which it is reported may cause a cessation of canal traffic for the rest of the year.

Evidences of a renewed buying activity on the part of the railroads are numerous. In last week's issue we called attention to the large orders for cars and locomotives placed in the last two months. Even more remarkable has been the rush to place early orders for rails and track material. Since October 1, the *Railway Age Gazette* has reported in its news columns orders for 653,000 tons of rails, which represents an expenditure of over $19,000,000. Including 107,500 tons reported in our columns in September, this makes a total expenditure of over $24,000,000 for rails alone. With this rail there were placed orders for at least $3,000,000 worth of track fastenings. It has been the practice of the railways in previous years to place their rail orders about the first of the year, but this year, on account of the congestion in the steel mills caused by the buying from abroad, they are beginning them much earlier than usual to secure delivery at the time the rails will be needed. The Pennsylvania has just bought 175,000 tons for its 1916 requirements. Its 1915 order was placed as late as June. The Rock Island has just been authorized to buy 40,000 tons of rails.

If the confidence aroused by the improvement within the past few weeks is sustained, railroad men will enter upon the new year with sentiments of relief and satisfaction. But it will take many months of good business for most of the roads to make up for the effects of the depression, and for many of them even a large increase in traffic will not suffice. A railroad's condition is not determined by gross earnings alone and the recent increases in net are largely artificial. They are the result of the very rigid economies that the railroads have been forced to practice and which cannot be continued without detriment to both service and property. The increase in traffic will entail large increases in expenses and the labor organizations are already beginning movements for an eight-hour day and for increases in rates of pay. If successful, these would cause increases in operating expenses, which, in the absence of heavy advances in rates, would soon absorb the enlarged net earnings now being shown. The improvement in conditions in the railway supply field are notable and gratifying; but, nowadays, the problems presented to the managements of the railways in years of good business are hardly less numerous and difficult than those presented in years of bad business.

Some roads are not even in a position to take full advantage of the sudden appearance of prosperity. While the shippers are clamoring for cars, many cars are not available for use, because, in some instances at least, their owners have kept themselves out of bankruptcy only by deferring expenditures for their repair until a more propitious time, and could not afford to repair them until they were sure they would be needed.

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## WHAT IS AN "EIGHT-HOUR DAY"?

THE large organizations of railway train employees are beginning another concerted nation-wide movement for increases in wages. This time they are going to ask for the adoption of a nominal 8-hour day in train service. The movement is of tremendous importance to both the railways and the public. Its success would cause, directly and indirectly, advances in operating expenses amounting to hundreds of millions of dollars annually, in addition to those which have occurred within recent years. The past increase in expenses have created a need for general advances in rates. The further increases in expenses that would be caused by accession to the demands of the employees would render imperative additional general increases in rates. The question presented is, therefore, not one which concerns only the employees and the railways. It equally concerns the public, which would have to foot most of the bill.

When any class of men or of organizations start a movement of such vast importance the question as to what is really being sought cannot be asked too explictly or answered too early. The railways and the public are therefore justified in at once interrogating the leaders of the labor unions as to whether when they say they want an 8-hour day they mean exactly what they say. Or do they use the words "eight-hour day" in a different

sense from that in which these words are ordinarily understood.

The 8-hour day already has been established for working men in many branches of commerce and industry. In every line where it now prevails it means that employees work not only a *maximum* of 8 hours, but also a *minimum* of 8 hours, for a day's wage. The conditions of work and bases of wages in railway train service are entirely different from what they are in any other industry. This fact and the reasons for its must be made entirely clear to the public before it will be able to weigh the arguments, pro and con, which doubtless will be presented in the discussion of the so-called "eight-hour day" in train service. The public, until correctly informed, will naturally assume, when it is stated that railway train employees now have a 10-hour day, and want an 8-hour day, that this means that they all now work 10 hours for a day's wage, and want to work only 8 hours for a day's wage. If this assumption were correct there could hardly be presented any argument against an 8-hour day in railway train service that cannot be presented against an 8-hour day in any other line of industry. But the facts are, that in railway train service practically no employees now work more than 10 hours for a day's wage, and that thousands work less than 10 hours, and even less than 8 or than 6, and in some cases less than 4 hours, for a day's wage. The reason for this is that in train service wages are based, not merely on *hours worked,* but also, and mainly, on *miles run;* and that when the requisite *miles* have been made the employee gets a day's wage no matter how few hours he has worked.

In freight service the working day consists of 10 hours work or 100 miles run. If an employee either works more than 10 hours or runs more than 100 miles he receives overtime. If he runs *more* than 100 miles in *less* than 10 hours he receives overtime for the *excess mileage,* and if he runs *less* than 100 miles in *more* than 10 hours he receives overtime for the *excess hours.*. The largest number of train employees is engaged in through freight service. The evidence introduced by the railways in Western territory in the recent arbitration of the controversy between them and their engineers and firemen showed that in the typical month of October, 1910, their engineers and firemen in through freight service worked an average of only 8.3 hours for pay for 100 miles, which is the equivalent of a day's pay. Evidence introduced in the same hearing showed that in the typical month of October, 1913, the engineers and firemen in through freight service worked an average of only 8.2 hours for pay for 100 miles. In way freight service the hours are longer than in through freight service, but on the other hand, in passenger service they are shorter. In passenger service in the West the basis of a day's wage at present is 6 hours and 40 minutes' work or 100 miles run, and in Eastern territory the basis is 5 hours' work or 100 miles run. Railway train employees are not working 10 hours a day, as they are leading the public to believe. Considering the situation as a whole complete data might show that on the average they are not now working an average of more than 8 hours for a day's wage. The spokesmen of the brotherhoods are beginning to fill the newspapers with statements to the effect that some railway train employees work 12, 14 and 16 hours a day. But they do not state the additional related fact that every train employee who works more than 10 hours receives overtime for the entire excess, and that thousands of train employees are regularly receiving a day's wage for working less, and in many cases much less, than 10 hours.

The foregoing facts show why we have headed this editorial with the question, "What is an eight-hour day?" Do the railway brotherhoods, in demanding the 8-hour day, mean not only that employees who are now working a *maximum* of 10 hours for a day's wage shall in future work only a *maximum* of 8 hours, but also that the employees who are now working only 3 or 4, or 5 or 6, or 7 hours for a day's wage shall in future work a *minimum* of 8 hours? In other words, do they desire, as the public is being led to infer, that employment and wages in railway train service shall be put on the same basis as employment and service in other lines of industry where the 8-hour day prevails? Or are they really asking that 8 hours shall merely be made the *maximum* working day in railway train service, and that the thousands of employees who now work less than this shall be allowed to continue to work less, with the result that on the average the working day in this service will be made only 7 or 6, or 5 hours?

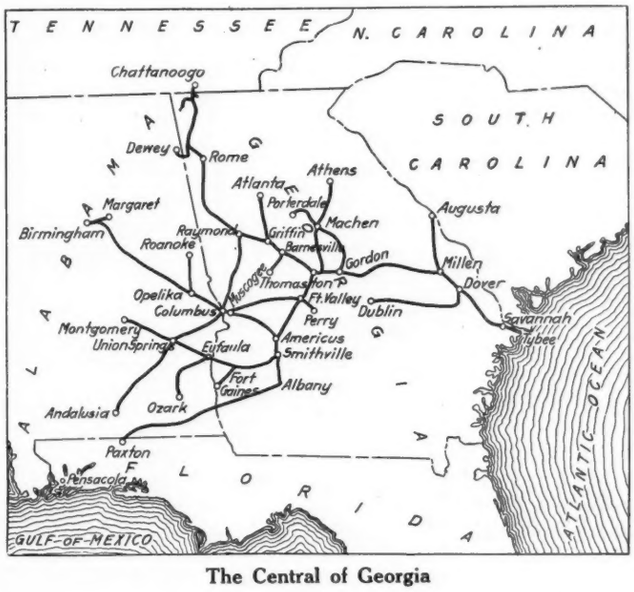
There is no doubt in the mind of any person who is well informed regarding the existing wage schedules in railway service that what the brotherhoods are really seeking is to establish 8 hours as the maximum and to retain the arrangements under which many of them work less than 8 hours. In fairness to the public and the railways the brotherhoods ought to be frank and explicit. Instead of merely saying that they want an "eight-hour day" they ought to state what is their definition of an 8-hour day. So long as they fail to do this they will rest under the suspicion of attempting to mislead the public and to prevent enlightening discussion of their true proposition.

## CENTRAL OF GEORGIA

THE Central of Georgia made steady gains in gross revenue from 1909 to 1912, held these gains through 1913, and had the largest gross revenue in its history in 1914. In that year it earned $14,327,000. The 1914 revenues were 40 per cent greater than in 1905. In 1915 the revenues dropped back more than half way to the 1905 figure, total operating revenues amounting to $12,108,000, or less than 20 per cent greater than the 1905 revenues.

The Central of Georgia operates 1,924 miles. A majority of its $20,000,000 stock is owned by the Illinois Central, which was also adversely affected by the business depression in the South and could not well afford to suffer any reduction of income through the passing or cutting down of dividends on the Central of Georgia.

The total loss of $2,218,000 in revenues of the Central of




**The Central of Georgia**

Georgia was made up by a reduction in operating expenses of $1,812,000, and by an extra dividend of $400,000 declared on the Ocean Steamship Company stock, which stock is held by the Central of Georgia. The net income of the Central of Georgia available for dividends in 1915 was $1,202,000 as against $1,091,000 in 1914. In 1914 dividends on the preferred stock only had been declared, calling for $900,000. In 1915 a 5 per cent dividend on the $5,000,000 common stock was declared, making the total dividend payments $1,150,000.

As has been pointed out in comments on the annual reports of other southeastern roads, all forms of industry in the South came almost to a standstill during the early months of the European war and passenger travel was very much smaller. The total tonnage of freight carried by the Central of Georgia in 1915 was 4,903,000, comparing with 5,631,000 carried in 1914.

The tonnage of cotton carried was 260,000 as against 234,000 the year before, and of cotton seed and cotton seed meal, 482,000 tons in 1915 as against 349,000 tons in 1914. It will be seen, therefore, how much more important to the earnings of the Central of Georgia the price of cotton is than the actual tonnage moved. The loss to the planters through low prices is reflected in a movement of but 932,000 tons of manufacturers over the Central of Georgia in 1915 as against 1,443,000 tons in 1914. On the other hand, depression in the lumber trade means both loss of tonnage of that commodity and loss of tonnage of other commodities because of the reduced buying power of those dependent on the lumber industry. The total tonnage of lumber carried by the Central of Georgia in 1915 was 460,000 tons, comparing with 715,000 tons carried in 1914.

To make a saving of $1,812,000 in operating expenses it was necessary to cut pretty drastically the expenditures of every department. Transportation expenses amounted to $4,254,000, a saving as compared with the preious year of $760,000. There was a considerable saving in yard expenses, in the operation of joint terminals, in station agents' pay and in the pay of labor at stations. There was also a large reduction in the payments for injuries to persons, the total payments in 1915 amounting to $199,000, which is less by $189,000 than the payments in 1914, and a reduction in the payments for loss and damage to freight, the payments on this account in 1915 amounting to $95,000, or $51,000 less than in 1914. A saving was also made in wages of enginemen and trainmen because of a smaller amount of traffic handled. A gain was made in trainloading, the average trainload in 1915 being 360 tons, including company and revenue freight, as against 347 tons in 1914.

Maintenance of way and structures cost $1,654,000 in 1915, or $462,000 (21.81 per cent) less than in 1914. Maintenance of equipment cost $2,247,000, or $584,000 (20.64 per cent) less than in 1914. Cuts of over 20 per cent in maintenance seem rather drastic. The largest cuts were made in the expenditure for timber for bridges, trestles and culverts, $140,000 in 1915 as compared with $285,000 in 1914; and in ordinary repairs of roadbed and track, $282,000 being spent on these accounts in 1915 as against $360,000 in 1914; and repairs to buildings, $100,000 being spent on these accounts in 1915 as against $172,000 in 1914.

There was a total of $491,000 spent for additions and better- There was a total of $491,000 spent for additions and betterments, all but a very small part of which was for additions and betterments to road, the largest expenditure being for track material other than rails and ties.

Cash on hand at the end of the year totaled $881,000, or about $39,000 less than at the beginning of the year, and loans and bills payable amounted to $3,665,000, an increase as compared with the previous year of $345,000.

If the Central of Georgia were an independent road with a large number of small stockholders the management might possibly be criticised for its policy in regard to maintenance retrenchments and adding further to floating debt while paying dividends on both preferred and common stock. The fact that the majority of the stock is held by a single large, rich corporation, which is strong enough to take care of the Central of Georgia's needs when the time for permanent financing of the floating debt comes, puts a somewhat different aspect on the case.

The following table shows the principal figures for operation in 1915 as compared with 1914:

| | 1915 | 1914 |
|---|---|---|
| Average mileage operated | 1,924 | 1,924 |
| Freight revenue | $7,859,378 | $9,169,090 |
| Passenger revenue | 3,001,184 | 3,815,474 |
| Total operating revenues | 12,108,184 | 14,326,575 |
| Maintenance of way and structures | 1,654,258 | 2,115,848 |
| Maintenance of equipment | 2,246,873 | 2,831,182 |
| Traffic expenses | 407,174 | 429,583 |
| Transportation expenses | 4,254,257 | 5,014,592 |
| Miscellaneous expenses | 18,145 | 21,473 |
| General expenses | 418,398 | 373,086 |
| Transportation for investment—Cr. | 25,592 | ..... |
| Total operating expenses | 8,973,512 | 10,785,764 |
| Taxes | 576,544 | 631,596 |
| Operating income | $2,547,633 | $2,909,214 |
| Gross income | 3,903,631 | 3,808,001 |
| Net income | 1,202,005 | 1,091,042 |
| Dividends | 1,150,000 | 900,000 |
| Surplus | 52,005 | 191,042 |

## ST. LOUIS & SAN FRANCISCO

THE St. Louis & San Francisco reduced its operating ratio in the fiscal year ended June 30, 1915, to 69.45, comparing with 74.06 in the previous fiscal year. Total income amounted to $11,671,000 in 1915, an increase of $1,417,000, or 13.8 per cent, as compared with the previous year. This would be at the rate of 7 per cent on a capitalization of about $31,800 per mile. It is conceivable that through the expenditure of further sums on grade reduction and heavier locomotives the operating ratio of the St. Louis & San Francisco could be brought down to 65 or even to 63 or 64; but even this would not allow operating income sufficient to yield a fair rate of return on anything like the cost of reproduction new of the 5,252 miles of road which is now being operated by the receivers unless the volume of traffic should increase by 20 to 30 per cent.

The good showing made in net was due to cutting down expenses even more than commensurate with smaller business. Total operating revenues in 1915 amounted to $42,975,000, a decrease as compared with the previous year of $1,949,000, or 4.3 per cent. Total operating expenses amounted to $29,839,000, a decrease as compared with the previous year of $3,432,000, or 10.3 per cent. The amount spent for maintenance in 1914 was abnormally high, the receivers having had to make extensive repairs and renewals to put the property into safe operating condition, and to take up previously deferred maintenance. In 1915 $6,088,000 was spent on maintenance of way, which was less by $1,674,000, or 21.6 per cent, than in the previous year. In 1914 there were 3,269,000 ties used on tie renewals. This would be equivalent to approximately 1,250 miles of track. The total miles of track, including second track and side tracks, of the St. Louis & San Francisco, including also 196 miles of trackage rights, was about 6,800 miles. The renewal of ties in all classes of tracks, including branch lines and side tracks, of more than one-sixth of the total number, is, of course, obviously abnormally high. In 1915 tie renewals totaled 1,367,000. The amount charged to expenses for ties in 1915 was $678,000, a decrease as compared with the previous year of $1,219,000, or 64.3 per cent. The smaller tie renewal also decreased the amounts spent for track laying and surfacing, the total on that account being $1,733,000 in 1915, a decrease as compared with the previous year of $262,000, or 13.1 per cent.

Maintenance of equipment cost $7,162,000 in 1915, a decrease as compared with the previous year of $331,000, or 4.4 per cent. There was a decrease of $837,000, or 22.9 per cent, in the amount spent for repairs, depreciation and retirements (the receivers' report does not separate these three accounts) of freight-train cars, the total in 1915 being $2,818,000.

The following table shows the percentage of each class of expenses to total operating revenues:

| | 1915 | 1914 |
|---|---|---|
| Maintenance of way and structures | 14.17 | 17.28 |
| Maintenance of equipment | 16.67 | 16.68 |
| Traffic expenses | 1.98 | 2.07 |
| Transportation expenses | 34.13 | 35.08 |
| General expenses | 2.76 | 2.95 |
| Transportation for investment—Cr. | 0.26 | ..... |
| Total | 69.45 | 74.06 |

Transportation expenses amounted to $14,668,000 in 1915, a decrease as compared with the previous year of $1,093,000, or 6.9 per cent. This compares with the decrease in business handled as follows: The total ton miles of all freight, including company, was 3,554,000,000 in 1915, or 16,000,000 (less than half of one per cent) less than in 1914; the total number of passenger miles was 495,600,000 in 1915, a decrease of 39,500,000 (about 7.5 per cent).

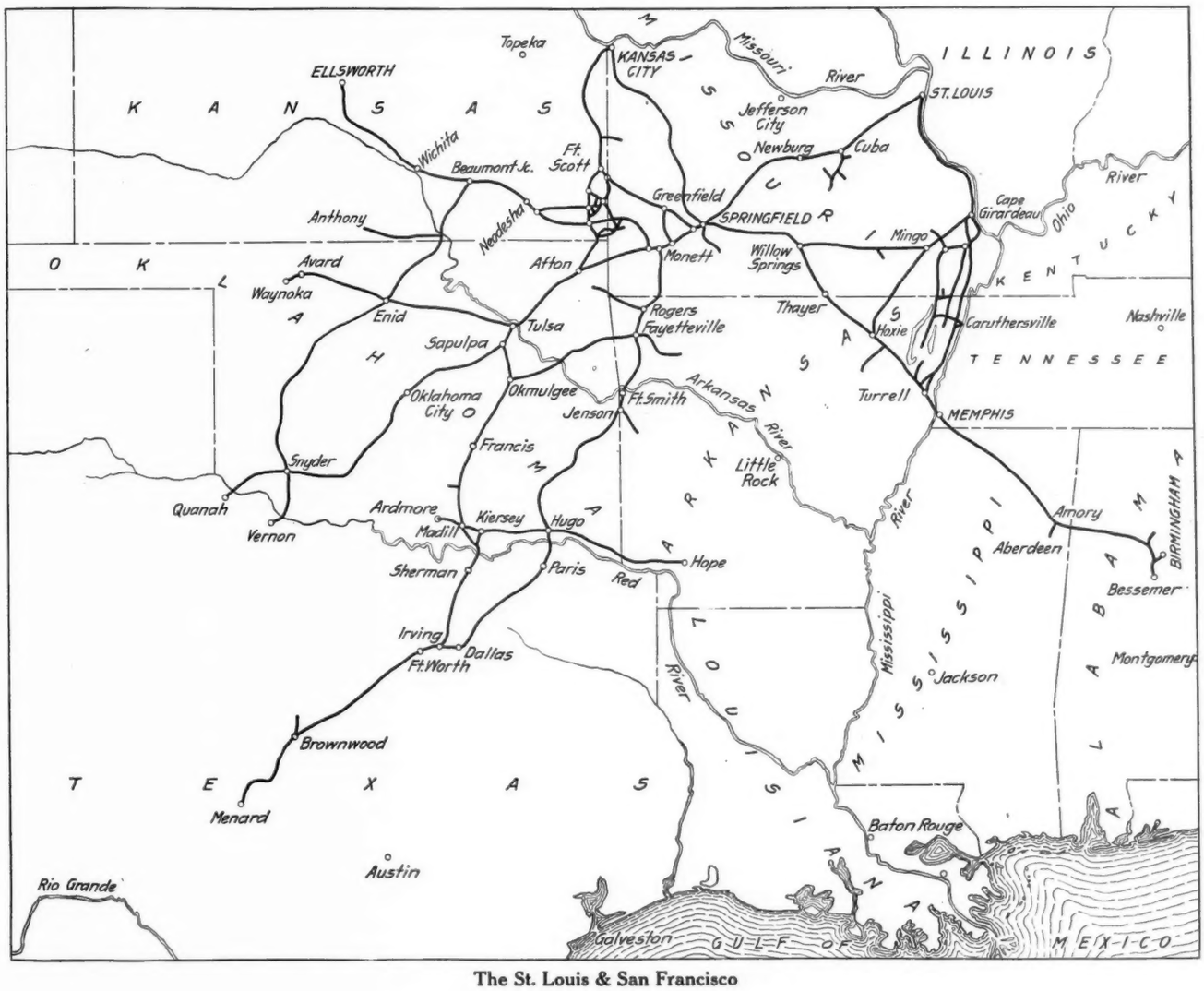
The results of the physical betterment of the property and the freight loss and damage preventive campaign show up in fine shape, as does also the saving made in fuel expenses. Loss and damage to freight cost $316,000 in 1915, a reduction as com-

pared with 1914 of $198,000, or 38.5 per cent. The 1914 loss and damage to freight was 5.8 per cent less than in 1913. Clearing wrecks in 1915 cost $72,650, a decrease of $55,307, or 43.2 per cent, as compared with 1914. Fuel for train locomotives cost $2,515,000 in 1915, or $253,000 (9.1 per cent) less than in 1914. Total locomotive mileage amounted to 24,257,000 miles, a decrease of 1,907,000 miles, or 7.3 per cent. The average trainload of all freight was 378 tons in 1915, as against 351 tons in 1914, an increase of 27 tons. There were on an average 17.14 loaded cars and 8.14 empty cars to the train in 1915, comparing with 16.71 loaded cars and 7.85 empty cars in 1914. The revenue per ton per mile in 1915 was 9.5 mills, and in 1914, 10 mills.

The total tonnage of revenue freight carried in 1915 was 18,762,000, comparing with 19,906,000 in 1914. The large difference between the reduction in ton mileage (less than half of one per cent) and the reduction in total number of tons carried (5.75 per cent) was due to the considerably longer average haul in 1915 for revenue freight. This figure was 165 miles in 1915, as against 152 miles in 1914. Of the total tonnage of revenue freight carried in 1915 28.37 per cent was bituminous coal and 7.29 per cent stone and like articles. Products of agriculture in 1915 furnished 19.74 per cent of the total tonnage, as against 15.60 per cent furnished by products of agriculture in 1914. Wheat alone in 1915 furnished 1,024,000 tons, comparing with 483,000 tons carried in 1914. The Frisco, like other roads, felt severely the depression in the lumber trade. The total tonnage of lumber and other forest products in 1915 was 2,741,000; in 1914, itself a year of depression in the lumber trade, the total tonnage of lumber and other forest products carried was 3,304,000.

The St. Louis & San Francisco's interest charges, rentals and sinking funds, and the annual proportion of the amortization of discount on funded debt totaled $13,353,000, so that with total income of $11,671,000, from the receivers' operations for the year showed a deficit of $1,285,000. Interest, however, totaling $6,829,00 was not paid by the receivers, so that the company's cash position at the end of the year was considerably better than at the beginning. Cash on hand amounted to $3,261,000 on June 30, 1915, as compared with $979,000 on June 30, 1914. Loans and bills payable amounted to $1,079,000 in 1915, comparing with $1,350,000 at the beginning of the year.

In discussing maintenance of equipment expenses it was mentioned that depreciation and repairs are not shown separately. It is evident, however, that the receivers are charging a very small amount for depreciation. The total accrued depreciation on equipment since 1907 is but $774,000. In discussing a possible operating ratio for the Frisco when it is taken out of the hands of receivers it must be borne in mind that charges for depreciation on equipment under the new ruling of the Interstate Commerce Commission will presumably be very much higher than those which have been made by the receiver during the court's administration of the property.




**The St. Louis & San Francisco**

The following table shows the principal figures for operation in 1915 as compared with 1914:

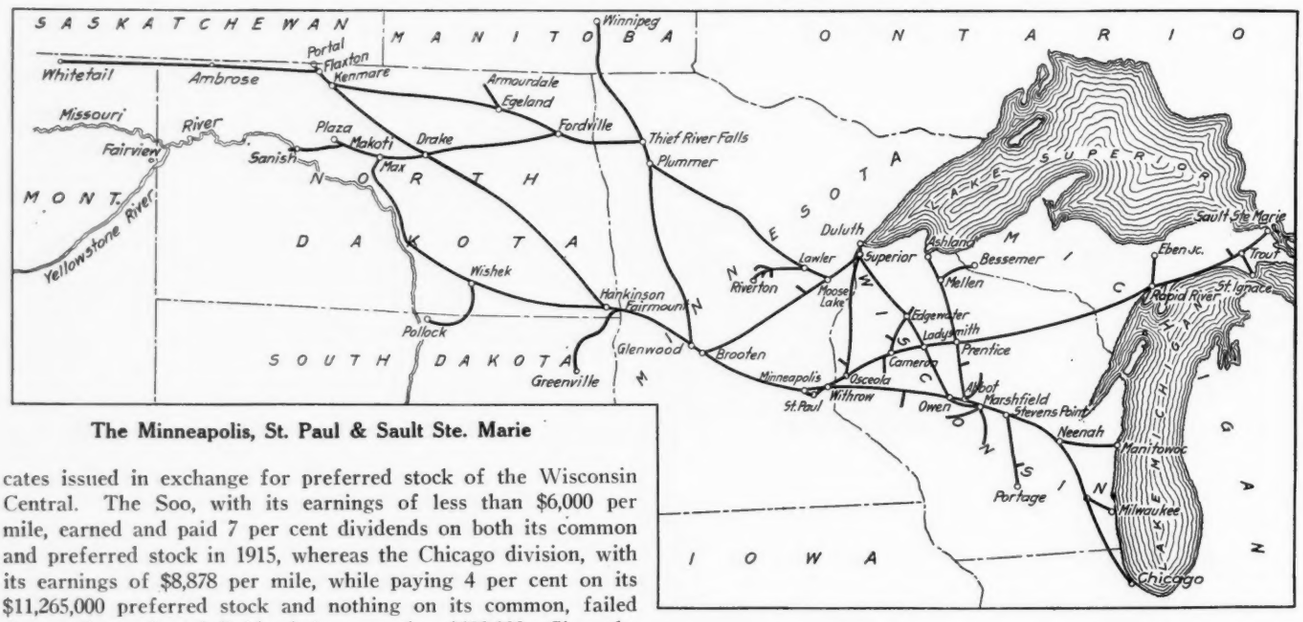
| | 1915 | 1914 |
|---|---|---|
| Average mileage operated | 5,252 | 5,259 |
| Freight revenue | $29,485,596 | $30,202,499 |
| Passenger revenue | 10,623,295 | 11,563,844 |

| | 1915 | 1914 |
|---|---|---|
| Total operating revenues | $42,974,573 | $44,923,569 |
| Maintenance of way and structures | 6,088,312 | 7,762,324 |
| Maintenance of equipment | 7,162,021 | 7,492,700 |
| Traffic expenses | 849,839 | 929,037 |
| Transportation expenses | 14,667,524 | 15,760,663 |
| General expenses | 1,185,269 | 1,325,876 |
| Transportation for investment—Cr. | 113,928 | ..... |
| Total operating expenses | 29,839,038 | 33,270,600 |
| Taxes | 2,016,706 | 2,149,215 |
| Operating income | 11,098,924 | 9,503,754 |
| Gross income | 11,670,767 | 10,253,665 |
| Deficit* | 1,284,672 | 2,828,142 |

* In 1915 there was $6,828,394 interest due but not paid by the receivers, and in 1914 $4,012,546. These sums were treated as paid in arriving at the deficit shown.

## MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE

THERE is an interesting contrast between the showing made by the Chicago division of the Minneapolis, St. Paul & Sault Ste. Marie (the Wisconsin Central) and the Soo itself in the fiscal year ended June 30, 1915. In a normal year the Chicago division earns between $9,000 and $10,000 per mile of road, and the Minneapolis, St. Paul & Sault Ste. Marie between $6,000 and $7,000 per mile of road. In the fiscal year ended June 30, 1915, the Chicago division earned a total of $9,945,000, or an average of $8,872 per mile on the 1,120 miles operated; the Soo earned a total of $17,818,000, or an average on the 3,044 miles operated of $5,854. The Soo owns $3,658,000 Wisconsin Central common stock and leases the Wisconsin Central (the Chicago division) by guaranteeing 4 per cent on the leased line certificates issued in exchange for preferred stock of the Wisconsin Central. The Soo, with its earnings of less than $6,000 per mile, earned and paid 7 per cent dividends on both its common and preferred stock in 1915, whereas the Chicago division, with its earnings of $8,878 per mile, while paying 4 per cent on its $11,265,000 preferred stock and nothing on its common, failed to earn the preferred dividends by more than $300,000. Since the Soo and the Chicago division are operated as one system, the difference in profitableness of operation to the stockholders is an illustration of the difference in capitalization of different roads and of the difference of expense of operating roads under different conditions, even when they are in the same general section of the country; still more important is the difference made by different ton-mile and passenger-mile rates.




**The Minneapolis, St. Paul & Sault Ste. Marie**

The Soo has total debt outstanding averaging $25,464 per mile and the Wisconsin Central $38,005 per mile. Stock outstanding per mile of the Soo amounts to $12,421; of the Wisconsin Central to $24,457. The freight density on the Soo in 1915 was 501,000 tons one mile per mile of road, and on the Chicago division 927,000 tons one mile per mile of road. The average receipts per ton per mile on the Soo were 8.24 mills, and on the Chicago division 6.97 mills. The passenger density on the Soo was 61,736, and on the Chicago division 94,311. The average rate per passenger per mile on the Soo was 2.028 cents, and on the Chicago division 1.888 cents. The average trainload of freight on the Soo was 396 tons in 1915 as against 404 tons in 1914, and on the Chicago division 456 tons in 1915 as against 464 tons in 1914. The operating ratio on the Soo in 1915 was 62.1, comparing with 65.2 in 1914, and on the Chicago division 67.9 in 1915 and 67.5 in 1914. The Chicago division lies almost wholly within the state of Wisconsin. The Soo crosses the state with its line from Minneapolis to Sault Ste. Marie, but the greater part of its mileage is in Minnesota and North Dakota.

The Soo carried 7,312,000 tons of revenue freight in 1915 as against 7,203,000 tons in 1914. Of the total in 1915 19 per cent was grain, 19 per cent lumber, 11 per cent other forest products and 14 per cent ores, with but 4 per cent merchandise. The Chicago division carried 6,039,000 tons in 1915 as against 6,442,000 tons in 1914, and of the 1915 total 4 per cent was grain, 14 per cent lumber, 12 per cent other forest products, 15 per cent ores, 5 per cent merchandise, and 9 per cent bituminous coal. The average length of haul on the Soo was 209 miles and on the Chicago division 172 miles. The operating expenses per train-mile for all classes of service were $1.62 on the Soo and $1.57 on the Chicago division.

The combined figures for the system show total operating revnues of $27,763,000 in 1915 as compared with $29,306,000 in 1914. Operating expenses amounted to $17,811,000 as against $19,354,000. There were slightly higher fixed charges and taxes in 1915 than in 1914 and the combined net available for dividends was $3,111,000 in 1915 as against $3,371,000 in 1914.

Crops were good last year, but this year's crops, especially of wheat, are much the best that the territory served by the Minneapolis, St. Paul & Sault Ste. Marie system has ever known. The prospects are therefore that in the present year the system will make a very much better showing than it did in the fiscal year ended June 30, 1915.

The following table shows the principal figures for operation for the Soo and for the Chicago division (the old Wisconsin Central) separately in 1915 as compared with 1914:

| | Soo | | Chicago Division | |
|---|---|---|---|---|
| | 1915 | 1914 | 1915 | 1914 |
| Average mileage operated | 3,044 | 2,982 | 1,120 | 1,123 |
| Freight revenue | $12,576,374 | $12,764,423 | $7,237,915 | $7,630,500 |
| Passenger revenue | 3,810,891 | 4,436,911 | 1,994,824 | 2,227,958 |
| Total operating revenues | 17,817,855 | 18,717,689 | 9,945,370 | 10,588,533 |
| Maint. of way and struct. | 2,096,307 | 2,405,187 | 1,211,190 | 1,220,082 |
| Maintenance of equipment | 2,724,036 | 3,160,909 | 1,252,718 | 1,402,758 |
| Traffic expenses | 337,332 | 375,815 | 260,189 | 285,821 |
| Transportation expenses | 5,495,980 | 5,755,346 | 3,734,415 | 3,941,125 |
| Miscellaneous expenses | 92,537 | 122,386 | 76,612 | 95,265 |
| General expenses | 384,840 | 389,585 | 225,586 | 199,980 |
| Transportation for investment—Cr. | 71,438 | ..... | 8,930 | ..... |
| Total operating expenses | 11,059,594 | 12,209,228 | 6,751,780 | 7,145,031 |
| Taxes | 1,135,439 | 1,182,367 | 667,614 | 597,473 |
| Operating income | 5,622,822 | 5,326,095 | 2,525,976 | 2,846,029 |
| Gross income | 6,666,787 | 6,409,338 | 2,587,257 | 2,892,739 |
| Net income | 2,974,004 | 2,853,502 | 136,732 | 517,696 |
| Dividends | 2,646,714 | 2,646,714 | 450,688 | 450,688 |
| Surplus | 327,290 | 206,788 | *313,956 | 67,008 |

*Deficit.

# Letters to the Editor

## A PLAN FOR IMPROVING THE POSITION OF RAILWAY CLERKS

NEW YORK

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

The letter under the heading "A Clerk's Plea," appearing in your issue of September 10, page 459, quotes the following striking paragraph from an article by George M. Basford, which appeared in your paper of July 23, page 150:

> Railroad clerks are a neglected crowd of competent and incompetent men—usually in blind-alley jobs with no training and no outlook.

The remedy suggested in the letter referred to is the writing of books and the founding of schools to train railroad clerks to do their work intelligently. Without expressing any opinion as to the practicability of that suggestion, I wish to offer another, which might be characterized as a first aid, because it is concrete and specific and can be put into effect in any individual organization, large or small, in a very short time and with very little effort. Briefly, it is this:

(1) Beginning at the bottom, where most beginnings are made, abolish the office boy. He is the first fellow in a "blind-alley" job with no training and no prospects. He is generally a youngster who should be in school; paid about $25.00 per month for doing indifferently work which teaches him little or nothing and affords little opportunity to attain even a minor clerical position. Abolish him and substitute a minor clerkship at $40.00 or $50.00 per month. For this sum you can have the pick of high school graduating classes—or, perhaps, if the position is given sufficient dignity, even better. Many young men desirous of entering railroad service would accept such a place if it definitely led somewhere, as hereinafter proposed. Here select the raw material and select it carefully. The work would be of the simplest and the applicant should be told plainly that he is being well paid for the privilege of selection rather than because it is expected his services will really be worth the price paid in the beginning. Accept him on trial. If he proves good material, retain him; otherwise correct the mistake at once and make a change. This will be justice to the man as well as to the company for which he works. It is of great importance to start right.

(2) Grade the office. Establish a regular and recognized progression from the student's position to chief clerk. Beginning with $50.00 for the student clerk, establish the salaries in rotation, say by $5.00 steps, to the top—$55.00, $60.00, $65.00, $70.00, $75.00, and so on. If necessary to have two or more positions at one salary—say three at $75.00, three at $80.00, two at $85.00, for example—fix the rank of these positions. Make the three $75.00 positions, for instance, Nos. 1, 2 and 3, so that the clerk reaching the first of these desks from the $70.00 job shall next pass to No. 2 desk and then to No. 3 desk and then to an $80.00 position.

(3) When a vacancy occurs somewhere in the line, roll the wheel; shove every man below up one notch and close the gap. Have every one in the force understand that he will not only be permitted to advance, but will be compelled to do so and that, when he can't keep up with the procession, he will be either (see paragraph 4) placed in a rest position temporarily or asked to seek employment elsewhere at something for which he is better fitted.

(4) As the pace may prove too rapid for some, who, nevertheless, will develop if allowed more time, create rest stations along the line—positions in which men who are backward may be held for a time until they catch up and then be put back in the procession. Seventy dollar, $75.00 and $80.00 desks, where there is more than one desk paying the same salary, afford opportunities to do this. One of the series may be set to one side to provide a stopping place for those employees who can go forward and wish to do so, but cannot go so fast.

(5) Results: Every man in the organization, knowing where he goes next, will be looking forward to that position and will be busy observing it and learning about it. Knowing who will follow him, he will be expected also to train that man as his understudy—and this work goes on constantly; it does not await the change; it anticipates it. Hence, when the change is made, the way has already been prepared and the painful process of learning a new desk and teaching a green man the old one at the same time is avoided. Everybody takes an interest. Everybody is "up on the bit"—looking forward, hopeful, enthusiastic, confident. Everybody is being educated in the most practical possible way. An office so organized will soon have several men who can handle several desks. The bugaboo of sickness and vacation time will disappear. The work of the absentee is performed easily—divided between two or three or four, who know how it is done. The student desk is frequently vacated for the next step up, and another recruit is carefully selected; and this choice raw material is trained systematically and absorbed into the organization—a continual infusion of new blood. Weak spots are uncovered, lazy ones and incompetents are eliminated. It may be hard on them, but it is good for the company and for the kind of men the company wants. I saw an example lately, when a change was made on a correspondence desk, of the danger of leaving a man too long in one job. This man had a fine memory, and he depended upon it and neglected to cross index the files, as he was expected to do. When he left there was chaos. It would not have happened under the system here explained, or, at least, it would not have long continued. This man would have either kept up his indices, or an early change would have disclosed his omission to do so in time so it could easily be corrected, and the clerk—in case he remained with the organization—would have been disciplined.

(6) Modifications and objections: No plan, however excellent, is self-executing. Nothing will take the place of office administration, and no practice can be established that will not require exceptions. That is what heads of departments are for. It will occur that certain men, while absolutely unfitted for some kinds of work, may still be useful at other tasks. If wise selection of students is made, these instances will be rare; but, when they do occur, account will have to be taken of them and some temporary modification made, while adhering generally to the plan. Sometimes changes will follow each other so quickly that men will not have become seasoned in the last position taken. In such cases a halt will have to be called and the vacancy filled from outside or from another department; but this does not argue against the plan as a whole. The office can be graded and the regular progression can generally be followed. If necessary to lighten work on some desks and increase it on others to accomplish this, that is easily done. More than one line of progression may be necessary, especially in large offices. If so, use more than one; that is a detail to be worked out by the intelligence of the chiefs, which they are paid for possessing and using. The dead level is deadly. Even the stenographers' desks should be graded and the "new man" (or girl) should take the least important work and the least pay and progress as there are changes above. One objection urged is that a change near the top changes the whole line. It is not an objection. It is a recommendation. The study necessary to prepare men for these changes has been going on constantly. There is little or no confusion when the change occurs. Everybody gets an advance; everybody is happy; every man has his interest aroused anew by new duties, by the knowledge that he is learning, that he is progressing, that he is no longer in a "blind-alley with no training and no outlook." He is being trained. He has an outlook. He is in the procession and he is going somewhere. It is the difference between a stream of living water and a stagnant pool; and,

(7) It has been tried and it works.

A SYMPATHIZER WITH THE CLERKS.

## THE COLD STRAIGHTENING OF RAILS

PITTSBURGH, Pa.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Captain Robert W. Hunt's article on the cold straightening of rails in the *Railway Age Gazette* of October 22, page 726, is timely and to the point. Especially is he correct in saying that now is an opportune time to consider this question.

The question as to the advisability of increasing the length of the rails beyond 33 ft. is being given serious consideration and it, as well as the question of cold straightening, involves modification of the hot bed equipment of the mills. It is therefore desirable that the two questions be considered simultaneously in order to avoid unnecessary changes in the hot beds.

More metal in the base of the rail has been advocated in order to minimize the necessity of cold straightening, but until more care is used in cambering and spacing rails on the hot beds the remedy will hardly produce expected results. It seems to be a prevalent opinion that by greater care in the cambering of rails and proper spacing on the hot beds a finished rail can be produced sufficiently straight to require little if any cold straightening. If this should prove to be a fact there would be no justification for delays in conforming to such practice. Cold straightening is, to say the least, extremely undesirable. While it may be too soon to subscribe to the belief that internal transverse fissures are caused entirely by cold straightening, it still is not difficult to believe that a considerable proportion of such fissures result from that cause.

Railroad maintenance of way engineers have a part to play in bringing about a satisfactory solution of this question. It will not be possible to produce an absolutely straight rail without cold straightening; therefore, in order to get rails that have been little or not at all cold straightened, the engineers should be willing to accept rails that are not entirely straight. Such rails will not pile nicely and will perhaps offend the habit of mind of the man on the ground by their appearance and by little annoyances in the handling. The great benefit to be obtained is, however, "Worth the Candle," at least such is the opinion of many careful and constant observers. The maintenance of way engineer, therefore, should "go along" in this movement.

The users of rail will welcome any effort of the manufacturers to produce a no-gag rail and will, I believe, co-operate to the best of their ability for that purpose.

J. T. ATWOOD
Chief Engineer, Pittsburgh & Lake Erie.

## GAGGING OF RAILS AND TRANSVERSE FISSURES

BALTIMORE, Md.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Referring to the discussion of the cold straightening of rails by Captain Robert W. Hunt, which appeared in the *Railway Age Gazette* of October 22, page 726, this is very interesting as well as an important subject and is deserving of more thought than is being given at the present time. The cold gagging of rails certainly does not benefit it any, as it must necessarily be strained beyond its elastic limit in order to straighten it. It is difficult to determine the amount of damage sustained by the rail, but rails that could be rolled and be practically straight without the use of gagging would seem to be desirable.

The reason that rails are not perfectly straight in cooling is probably due to their different temperatures when they pass through the cambering machine. Some of it is also possibly due to the irregular way in which they are allowed to cool on the cooling beds. The cambering machine should be made to give the right camber to each rail according to its temperature, and if this were done we would probably get practically straight rails without gagging.

I do not know that it is proven that the gagging causes interior transverse fissures. Our experience is that all the transverse fissures we have found have been in open hearth steel, with the exception of possibly some low phosphorous, high carbon, Bessemer rail. Therefore, if they were due to gagging alone, it would seem that we would have had more of them in Bessemer steel. We have found large transverse fissures in rails about two inches apart. It is our opinion that the transverse fissures start from a broken fibre somewhere in the head of the rail, due to that particular fibre being overstrained in some way, probably the result of a combination of internal strains, due to cooling, together with the component of the vertical and horizontal forces produced by the heavy wheel loads. After this fibre once breaks, the repeated wave motion through the rails, caused by innumerable wheels passing over them, causes a detailed fracture to spread from this center until we get the silvery spot as noted when the final fracture takes place.

With a tendency to the heavier sections, there might be difficulty in laying such rails without having a straight edge or template to lay the rail to, and the heavier the sections the more difficulty would be experienced in spiking the rail to line. However, with a cambering machine, if the rails were cambered according to the temperature, we might expect to get rails practically straight without gagging, but the indications are that this would not overcome the transverse fissure.

A. W. THOMPSON
Third Vice-President, Baltimore & Ohio.

## A PLAN TO REDUCE PILFERAGE

WHITE HORSE, Y. T.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have been reading with great interest some of the late articles in the *Railway Age Gazette* in regard to various methods of reducing freight claims.

In a great number of cases damaged packages result from improper loading and careless handling. However, I believe the largest number of loss and damage claims result from pilferage. With the package requirements of today's classifications it is evident that most packages are strong enough to afford adequate protection to the commodities they contain but it is obvious that no packages have been so constructed as to prevent pilferage.

During my experience I have noted that in a great many cases where packages have been recoopered after being bad order in transit no-account rough teamsters watch for a loose nail or board in order to secure a notation of "evidence of recoopering, etc." In fact, the contents may be O. K. upon delivery to the teamster but in view of the notation he could lift some of the contents; and naturally the railway company would be liable.

My idea to reduce loss and damage claims would be to cord and seal all packages when they are first found to be in bad order. A small lead seal and inexpensive cord, such as is used on bonded baggage and express, could be used. As they are easily applied this would not take over a minute for each package and would in no way result in congestion.

As all employees, such as agents, yard clerks, freight conductors, etc., are supplied with a sealing iron, it could be used for this purpose as well as for sealing cars with the station seal. By the number of the seal pilferage or improper handling could be easily traced and steps could be taken to prevent such occurrences. As most pilferage is due to petty thieves, sealed packages would retard their efforts in that direction. I believe that if such a plan were put into effect by the carriers on packages after they were first recoopered it would prevent further loss and reduce the number of freight claims to a great extent, because a recoopered case, when examined at a transfer point and found to be short, will generally be short several more articles on arrival at destination. Also I believe that when shippers came to see the benefit of the protection afforded it would be only a short time before they would adopt a similar plan and seal and cord all their packages. Then in case of damage or pilferage the number of the seal would show where it took place. This plan would also insure more careful attention by employees and bring about their co-operation in reducing freight claims.

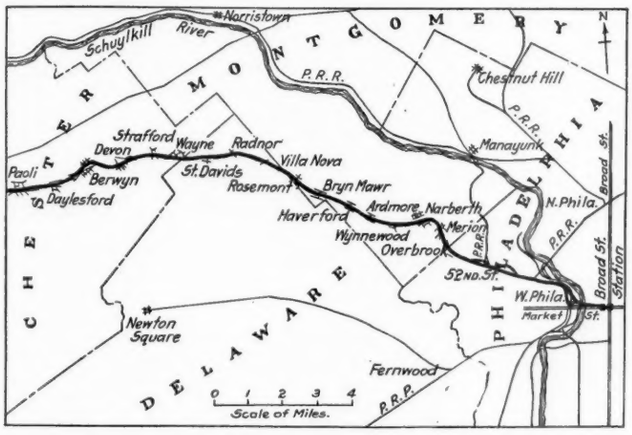
R. B. HYETT.

# Electrification of the Pennsylvania at Philadelphia

## Made Necessary by the Congestion of the Broad Street Station; Chestnut Hill Branch to Be Electrified Also

The electrification of the suburban service of the Pennsylvania between Broad Street station, Philadelphia, and Paoli is the first work of this nature undertaken by that company in the vicinity of Philadelphia. Its primary purpose is to increase the capacity of Broad Street station and relieve congestion at that terminal. This station is of the stub-end type, having 16 station tracks approached by 6 main line and 3 yard tracks on an elevated railroad which crosses the Schuylkill river from West Philadelphia. At this point the routes divide toward the north for New York, toward the south to Washington and toward the west to Pittsburgh.

In addition to the through passenger service accommodated at Broad Street station, there is an extensive suburban service extending over six different routes. The growth of all business in recent years has been such that the limit in capacity of the station has been reached and many plans have been formulated




**Map Showing Electrified Portion of the Pennsylvania Between Philadelphia and Paoli**

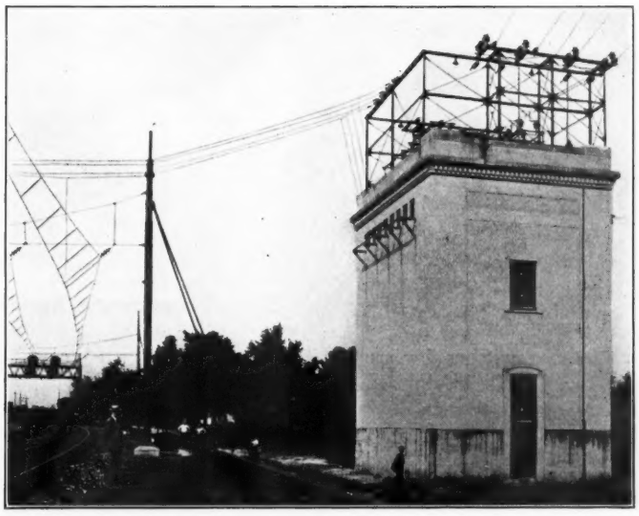
and discussed for relief by physical enlargement of the station and its approaches, or by rerouting movements. All of these plans involve extensive reconstruction and would require much time for their accomplishment so that some more expeditious method of obtaining relief was desirable. The possibilities of electric traction as a means to this end were studied by committees of operating officials and their analyses and estimates indicated that during rush hours the relief which would be secured by the electrification of the Paoli suburban service alone would be equivalent to increasing the station capacity by an amount equivalent to reducing the total number of trains by about 8 per cent. A similar increase in capacity would result from the electrification of other suburban lines; work in connection with one of these, the Chestnut Hill branch, has already commenced. This increase in capacity is effected by the elimination of the shifting back and forth from one track to another of cars, while the movement of empty power is avoided. There is also some gain in capacity resulting from the quicker acceleration of trains and the shorter length of track occupied by a given train when the steam locomotive is not required. Relief thus afforded by electrification of the Paoli and Chestnut Hill lines is estimated to be sufficient to take care of the normal growth of business for the next seven or eight years and the period of relief can be further extended by the electrification of other suburban lines, should the trial of this initial electric service meet expectations.

It is estmated that under electric operation there will be a sufficient saving in operating costs, as compared with steam, to pay interest on the investment, which, in this case, includes the most expensive portion of the work in that the entire Broad Street terminal with an elaborate yard and restricted property lines and approaches thereto form a part of the construction required for a relatively small amount of train service. This is not an unfavorable result under the circumstances, meaning as it does that the increased capacity thus obtained will in part, at least, be self-sustaining, whereas increased capacity by physical enlargement would give no direct return on the heavy investment. In addition there are the other contingent and important advantages of electrification such as the higher speed of trains, more punctual service, especially in bad weather, and more cleanly and attractive conditions for the traveling public.

### THE ELECTRIC SYSTEM

An analysis of service conditions and cost estimates covering all available electric systems led to the conclusion that one using a high voltage overhead contact wire and one which eliminated moving machinery in substations for the supply of power was most suitable and also the most economical from the standpoints both of first and operating costs. In arriving at a conclusion as to the system, primary importance was attached to the feature of possible long-distance operation over the entire divisions affected, rather than to the requirements for present short suburban electric service. In this case 11,000-volt, single-phase 25-cycle power is supplied directly to the trains from the overhead catenary trolley system.

While the studies which preceded this work involved the possible future electrification of several different railway divisions and classes of service, the present installation covers only the suburban passenger service from Philadelphia westerly to Paoli on the main line of the Philadelphia division and involves about 43 trains each way per day. From Broad Street station the main tracks are electrified for 20 route miles, including also a coach yard at West Philadelphia and a coach and repair yard at the end of the electrified section at Paoli. The present electrification embraces about 93 miles of track.



**Transformer Substation for Reducing Voltage at Paoli, Pa.**

### TRANSMISSION

Power at 25 cycles and 13,200 volts for traction purposes is purchased from the Philadelphia Electric Company and is delivered to the railroad at a substation on the westerly bank of

the Schuylkill river opposite the main generating station, the connection between the power house and the substation consisting of armored submarine cables under the river. On the west bank of the river, the submarine cables are connected to paper-insulated, lead-covered cables, installed in clay ducts. Switchboard meters are provided on each of the incoming 13,200 volt feeders. From this substation, known as the Arsenal Bridge substation, there are four 44,000-volt, single-phase transmission lines to the West Philadelphia substation. These four lines will tee into the West Philadelphia substation. Two of them continue on to the Bryn Mawr and Paoli substations and the other two will go to the Chestnut Hill substation later.

The four transmission lines are carried on brackets on the side of the elevated structure between the Arsenal Bridge substation and the West Philadelphia substation. Beyond this point they are carried on the catenary supporting structures. Along the right-of-way the lines are carried on both sides of the tracks. These insulators withstand the following tests: Dry flashover, 165,000 volts; wet flashover, 120,000 volts; puncture, 250,000 volts. After erection, the transmission lines were tested out at a potential of 66,000 volts, or three times the working pressure, to ground.

SUBSTATIONS

The substation equipment is housed in substantial fireproof brick buildings adjacent to the tracks. The lightning arrester equipment and high-tension feeder sectionalizing switches are located on the roof; the bus bars and switching equipment on the second floor, and the transformers on the ground floor. The installed capacity of the substations are as follows:

| | | |
|---|---|---|
| Arsenal Bridge | 3—5,000 K.V.A. | step-up transformers |
| West Philadelphia | 2—2,000 K.V.A. | step-down transformers |
| Bryn Mawr | 2—2,000 K.V.A. | step-down transformers |
| Paoli | 2—2,000 K.V.A. | step-down transformers |

Space is provided in all substations for 100 per cent increase

**Arrangement of Apparatus in a Typical Substation**

Horn gap switches for sectionalizing are installed on the roofs of the West Philadelphia, Bryn Mawr and Paoli substations and lightning arresters on the roofs of all substations.

The transmission lines are 2/0—7 strand, hard-drawn copper wires, spaced 5 ft. apart where the two wires of a single-phase feeder are on the same cross arm. Where there is more than one circuit on a pole the vertical spacing is 3 ft. 6 in. The lines are protected by a ⅜-in. steel ground wire on the top of the poles. Where the transmission lines pass under highway bridges, the ground wire is dead-ended on the bridge structure and the wires are carried on post-type insulators.

At the Arsenal Bridge substation, the lines are protected by relays which operate on overload and on an unbalanced load in either leg caused by a ground. In the other substations the relays operate only differentially, and in case of a ground between substations the circuit on which the trouble occurs will be cut out first in three of the substations and finally at the Arsenal Bridge substation. Overload relays are provided in the 13,200-volt lines at the Philadelphia Electric Company's power station and reverse current relays in these feeders in the Arsenal Bridge substation.

The pin type porcelain insulators used on the transmission lines are 8 7/16 in. high and 12 in. in diameter, made up of 4 parts in capacity. The transformers in all substations are of the 25-cycle, single-phase, oil-insulated, water-cooled type. The primaries of the step-up transformers in the Arsenal Bridge substation are wound for 13,000 volts and the secondaries for 44,000 volts. The primaries of the step-down transformers in the other substations are wound for 44,000 volts and the secondaries for 11,000 volts. The lightning arresters on all 44,000-volt and 11,000-volt lines are of the electrolytic type and are located on the roofs of substations. The circuit breakers are automatic and remote controlled. In general all power wiring is bare and copper tubing or solid wire is used.

Power for the opening and closing of oil circuit breakers is obtained from the 44,000 or 11,000, 25-cycle buses. Two transformers are provided in each substation, stepping down to 440 and 220 volts.

Except in the West Philadelphia substation where the power director or system operator is located there are no attendants. A switchboard, with the necessary instruments, controllers and indicating lamps, is provided in signal towers near the Arsenal Bridge, Bryn Mawr and Paoli substations. Telephones are provided in all substations and the signal towers controlling them so that the power director is in constant touch with all substations and tower men.

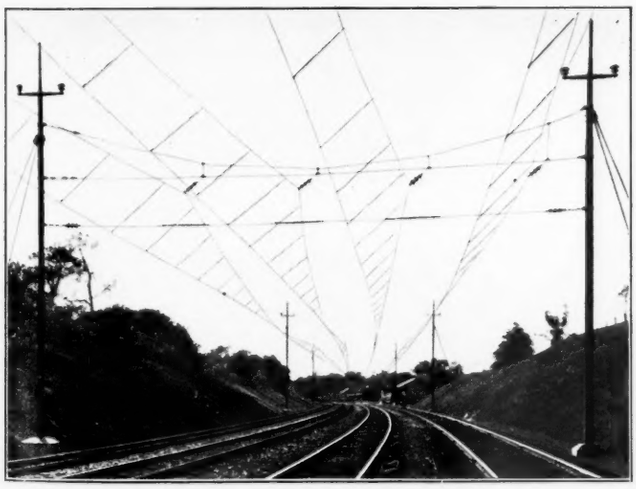
CATENARY SYSTEM

In order to try out the various types of structures and details considered for this work, an experimental four-track section about a mile long was completely equipped in the fall of 1913. An examination and study of this led to the adoption of what

**Tubular Cross-Catenary Bridge Before Longitudinal Wires Were Erected**

is called the "tubular cross-catenary bridge" for carrying the catenary trolley wires.

One of the photographs shows one of these structures before any longitudinal wires were erected. On either side of the tracks a tubular steel pole is set and grouted into a concrete foundation. Each pole has a double guy anchoring the pole away from the tracks. Spanning the tracks between the poles are the two cross wires forming the cross catenary bridge which carries the longitudinal wires. This type of structure has been used through-

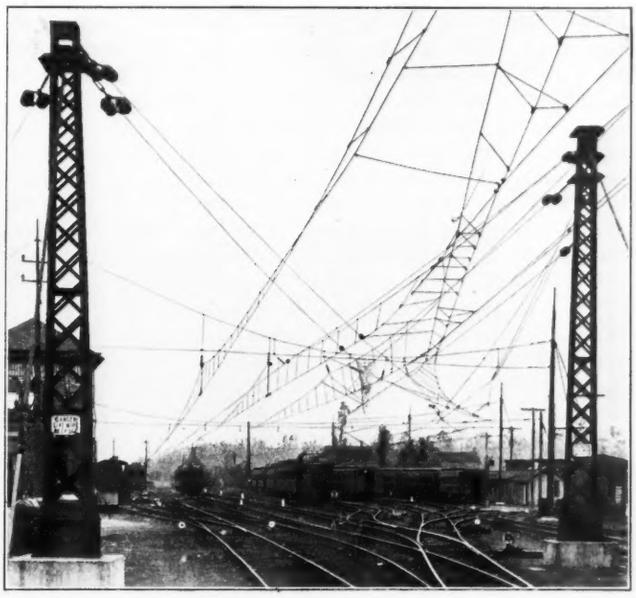


**Catenary System Over Curved Track**

out wherever the property or arrangement of tracks will permit. Where there is no room for guying, self-supporting structural steel posts have been used.

The tubular poles are built of various lengths, sizes and weights of steel pipe welded together. The guys are solid steel rods with heavy turnbuckles near the ground end to permit of adjustment. Numerous experiments and tests of different forms of guy anchors were made to determine the holding power and economy, and the anchors adopted are of the dead-weight type, consisting of a concrete slab reinforced with old rails held in place by the weight of the soil above. Where the guy rods pass up through the soil they are protected against corrosion by means of a steel pipe, the space between the pipe and rod being filled with grout. Each catenary structure or bridge is grounded by means of a copper plate buried in coke. The guy rods are attached to the pole by means of heavy steel castings.

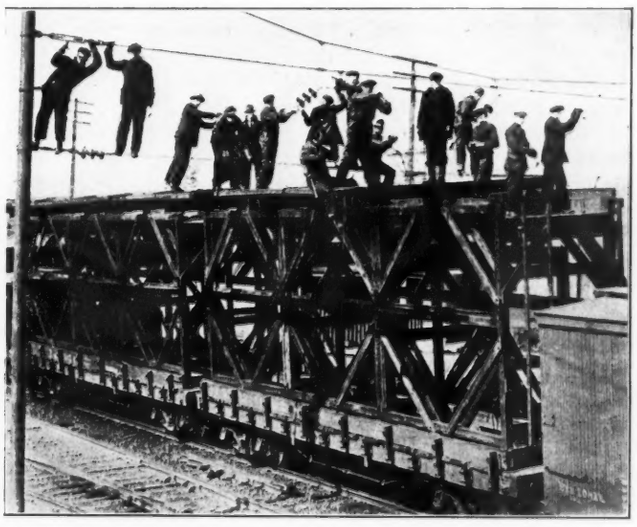
The cross wires are of extra high-tension galvanized steel strand, the upper strand usually being ¾ in. and the lower one ½ in. in diameter. Both are socketed at each end, and at one side a turnbuckle is installed to permit adjustment. The top and bottom cross wires are joined together by a vertical ¾-in. rod



**Catenary Construction at the Paoli Yard**

and suitable malleable iron clamps, etc., at the points where the insulators carrying the longitudinal wires are located.

Each insulator consists of three suspension type units, the porcelain being 8 in. in diameter and the flashover value of the three being many times that of the line voltage. The cross wire bridges are located about 300 ft. apart on tangents, but are closer on curves. After the bridges were erected, insulators



**Special Car for Erecting Catenary Work; Removable Outriggers Make it Possible to Work Over Track Alongside Without Interruption to Traffic**

were suspended over the center of the track on tangents and offset towards the outside of the curve on curved track. After the insulators were erected, the main messenger wire was strung out and suspended from them. This is a ½-in. extra high tension 7-strand double-galvanized steel cable, having a sag of

5 ft. in a span of 300 ft. Every mile or two this messenger is socketed and dead-ended on one of the heavy structural signal bridges which are spaced about ½ mile apart.

Every 15 ft. on curved track and 30 ft. on tangent track a hanger supports the lower two wires from the messenger wire. The top one of these two wires, called the auxiliary messenger, is of No. 0 round B. & S. copper and its purpose is to give suitable current capacity to the system. The bottom wire is the contact or trolley wire and is a No. 3/0 grooved B. & S. "phono-electric." Both these wires are carried in a vertical plane generally about 22 ft. above the top of the rail except where they drop down to pass under an overhead highway bridge having insufficient clearance to permit this height.

In the Terminal division, which includes the first five miles from Broad Street station, where the steam locomotive traffic is very dense, and there is much smoke and corrosive gas, a non-corrodible tube hanger is used. Some of the tube is Monel metal, while the balance is a bronze mixture containing 90 per cent copper. On the Philadelphia division, where there is relatively less steam traffic, wrought iron strap hangers 1 in. wide by 3/16 in. thick are used. The main messenger cable at the hanger clip is protected from corrosion by a collar of zinc inside of the annealed brass or Monel metal clip, which is bolted to the hanger strap.

On tangents, the casting at the bottom of the hangers holds the auxiliary messenger only and the trolley wire is, in turn, supported from this auxiliary messenger every 15 ft. at points equidistant from the hanger. This insures a flexible or smooth riding trolley wire. On curves the two lower wires do not hang directly beneath the messenger, but the whole system swings into a curved plane until a balance is reached between its weight and the tension in the wires. The tensions in both the auxiliary messenger and trolley wires are selected so that in extreme hot weather there will be enough tension to prevent sagging and yet in extreme cold weather the contraction will not cause stresses beyond the elastic limit. The catenary system over each of the four main tracks is separated electrically from those over the other tracks, and trolley sectionalizing points with switches are provided at all crossovers so that sections of the line may be cut out of service temporarily for repairs.

An interesting detail in the erection of this catenary work was the use of cars, the top platforms of which could be raised or lowered readily by means of chain hoists. The cars were also equipped with removable outriggers so that in the four-track section the work could be erected completely over one of a pair of tracks without in any way interfering with the regular steam traffic on this track.

In order fully to protect the trainmen, general orders have been issued that no men are allowed on top of any car in the electrified zone.

### BONDING

The rails are bonded with pin-type expanded terminal bonds. To furnish a circuit for the return of the traction current to the substations, one end of the bond has a terminal solidly welded to the bond while the other end has a soldered terminal. This enables the bond to be installed by being slipped back of the splice bar without the necessity of removing it. Each rail of the main line tracks is double-bonded throughout, each rail joint having two No. 1/0 B. & S. bonds. Through the interlockings only one rail of each track is bonded, but all of the traction rails are connected together.

The track rails are sectionalized at each signal block by means of insulating splices and the traction current flows through impedance bonds connected around these insulated joints. These impedance bonds allow the passage of the traction current, but at the same time sectionalize the track so far as the 60-cycle signal current is concerned.

In order to minimize the inductive effect of the traction currents on adjacent telephone and telegraph wires, a special system of booster transformers has been installed. This consists of series or booster transformers mounted on the signal bridges and located about a mile apart.

**Multiple Unit Train on the Electrified Portion of the Pennsylvania at Philadelphia**

### CAR EQUIPMENT

Standard suburban steel coaches of the type used in the regular steam service are being used for the electric service. This was made possible by the fact that the requirements for mounting electric apparatus on the cars had been thoroughly considered at the time when the steel car was first introduced.

The rolling stock consists of 93 standard all-steel cars, 82 of which are passenger, 9 combined passenger and baggage and 2 combined baggage and mail cars. All cars are motor cars, as no trailers will be operated in this service.

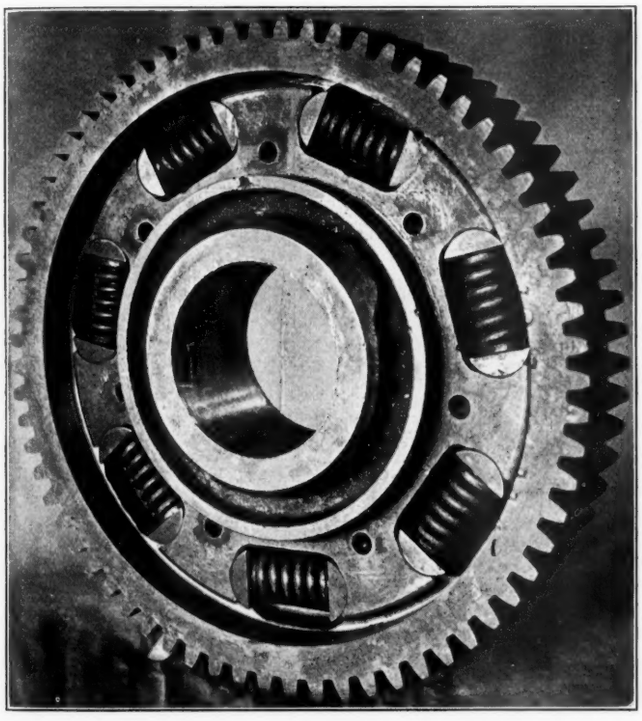
The equipment of each car consists of two 225-h.p., single-phase, air blast-cooled, doubly-fed motors, mounted on one truck, with automatic acceleration, battery control equipment, and automatic multiple unit electric air-brake equipment. The cars are designed for double end operation. Current is collected from the overhead wire by the pantagraph trolley and is conducted to the main transformer through the line switch (oil circuit breaker).

The motors, which are connected in series, are started and operated up to approximately 15 m.p.h. as repulsion motors, with the auxiliary or compensating field, the armature, and the main field in series. With these series connections, the armature is short-circuited through resistance. Resistance is also inserted in series with the motors on the first step and is cut out on the second step. The third step changes the connections to energize the auxiliary field from one portion of the transformer and the armature and main field, connected

in series, from another portion of the transformer, thus affording doubly fed connections. The armature short-circuit is removed when operating as doubly fed motors. Subsequent steps are obtained by increasing the motor voltages.

The master controller drum is energized from the motor generator set, in parallel with the battery, through a control plug, and moving the master controller handle to the right or to the left energizes the proper control circuit for forward or for reverse movement of the train. The closing of the unit switches is governed by a current limit switch. Ten control wires between cars are necessary to operate cars in trains with one of these wires performing the dual function of the third operating wire, and the "trolley unlock" wire.

Each motor has an hourly rating of 225 h.p. and a continuous rating of 200 h.p. when ventilated with 1,200 cubic feet of air



**Flexible Gear with Cover Plate Removed**

per minute. The flexible gear is made up of a rim, on which the teeth are cut, a center, a cover plate and spring details. The rim is spring mounted on the center, the periphery of the center and the cover plate acting as the bearing surfaces for the rim.

The pantagraph is of especially light construction. The springs which raise it are designed to give flexibility to the framework, so that in operation a slight dragging of the trolley takes place, resulting in its following the wire much closer than with a rigid framework. The trolley is lowered and unlocked by air at 70-lb. pressure. A small hand pump is provided for unlocking the trolley when no air pressure is available.

The "safety first" principle has been carried out in the provision of a grounding device of novel design. Steps for mounting to the roof are provided at one corner of the car only and a lever is placed on the roof at this corner. When one climbs to the top of the car, this lever is thrown up, thus locking the trolley in the down position and grounding the entire framework.

The line switch is air-operated and is closed by energizing a control circuit from the master controller plug. The transformer is of the 2-circuit air-blast type and is suspended from the center sill of the car as close to the motor truck as possible. Ventilating air is taken in at the low-tension end and is discharged at the high-tension end through especially constructed hoods which cover the air outlets to prevent the entrance of rain and wheel wash.

Nine electro-pneumatic operated switches of standard construction are mounted in one group. The master controllers are of the single-handle type. Nine controller positions are provided; an emergency or "dead man's" position in the center, and an "off," first, second and third running positions, for both forward and reverse movements. The controller drum is spring returned, and, if released, will return to the middle or emergency position. In this position, the control is cut off and a valve magnet is energized which releases air from and operates a brake pipe relay, thus applying the emergency brake. Each controller also has two push button switches for unlocking or lowering the trolley. Control energy is obtained from a motor generator operating in parallel with a battery.

A line or voltage relay is provided for cutting the direct current control generator from battery, and also to operate two small emergency lights, and headlights in case the traction power should fail.

The fan for ventilating the transformer and motor is a 21-in. single inlet Sirocco wheel, and is mounted on the shaft of the motor which drives the compressor. The motor drives the fan continuously. Air for the ventilation of the transformer and motors is taken in at the side of the cars through a louvre. The air intake box is designed with a baffle and screen to prevent the entrance of moisture or foreign material to the fan.

The air-brake equipment is designed so that it may be used either in steam or electric service, and differs from the ordinary pneumatic brake in that the brake pipe reduction is made on each car by means of electric control instead of being made entirely with the engineer's brake valve. The addition of electric control to the pneumatic brake does not change its function in any way but shortens the time required to get the brakes applied on all cars.

The motorman's brake valve contains both electric contacts and pneumatic parts, the electric portions being mounted above the pneumatic portions. There are six positions: (1) the release and running, (2) the electric holding, (3) the handle off, (4) lap, (5) service and (6) emergency. The first named position is to the left and in this position all train brakes are released and the system charged. The "electric holding" position, as the name implies, holds the train brakes through the electric control system but recharges the system. Pneumatically, this position is identical with the release and running position. All ports are closed in the "handle off" position, and the handle may be removed; in the "lap" position, the ports are also closed. The "service" and "emergency" positions are for applying the brakes for service or emergency application. In making a service application, a limiting valve in conjunction with the brake valve allows a maximum reduction of 20 lb. in the brake pipe. A small cut-out plug is provided for cutting out the electric operation when desirable.

The main reservoir pressure carried is 100 lb. and the brake pipe pressure is 70 lb. To permit the operation of these equipments in steam service, where the brake pipe pressure is 110 lb., without making adjustment, a main reservoir bypass and limiting valve is employed. By its use the same cylinder pressure is secured in making an emergency application in either steam or electric service, although the operation of the universal valve is the same for either. In steam operation, the pipe line, which is used as a main reservoir line in electric service, is used as a signal line.

Trains of from two to seven cars are operated in regular service, the average acceleration on a straight level track being approximately 1 mile per hour per second up to 30 m.p.h. with a balancing speed of 60 m.p.h.

### CAR INSPECTION BUILDING

A substantial and completely equipped car inspection building has been constructed at the Paoli yard. This is planned to serve not only the cars required for the present electrification but

also for the cars required by certain other divisions when electrified. Adjacent to the inspection building proper is a small service building which contains boilers for heating, locker and wash rooms, air compressors and motor generators for supplying power for the tools and signals.

### SIGNALS

Throughout the electrified zone, it was necessary to change the existing direct current track circuits to alternating current track circuits and to provide impedance bonds which permit the return of the 25-cycle traction current, but sectionalize the various track circuits so far as the 60-cycle current is concerned.

In the electrified portion of the Philadelphia division, the old form of semaphore signals have been replaced by those of the electric-light type in which different rows of five lights each with suitable lenses indicate the various positions of clear, caution and danger.

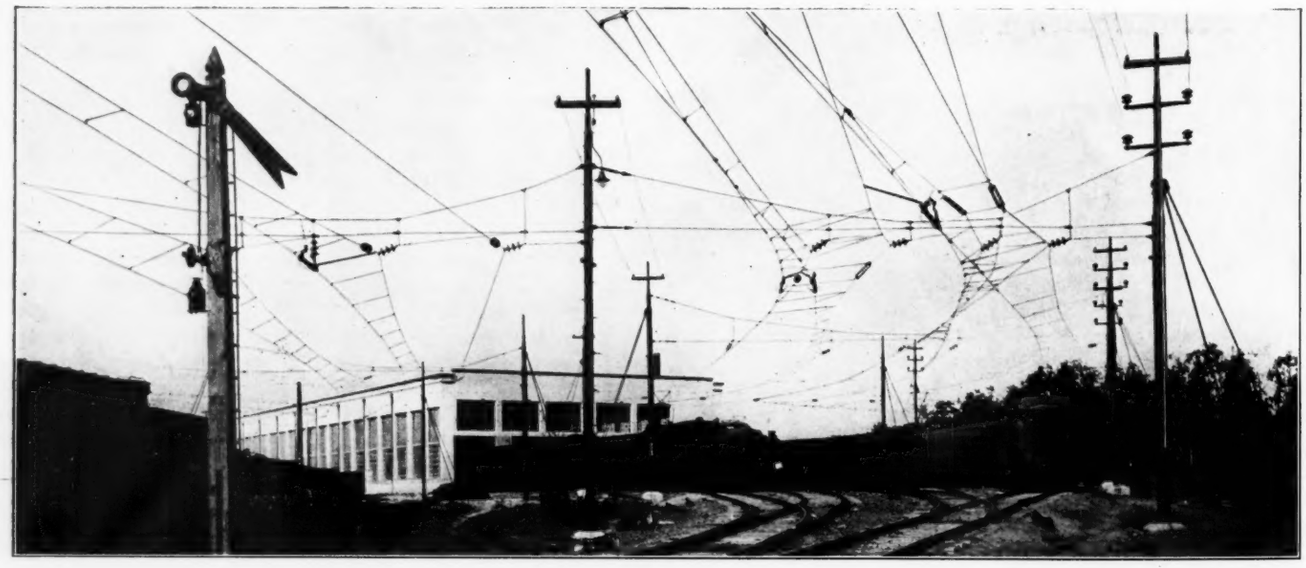
To provide proper vertical clearance for the catenary wires, as well as to provide points for anchoring them, practically all the old signal bridges in the electrified zone were replaced with ones of considerably heavier design. In order to nullify the induction effect of the traction current in the signal circuits of adjacent tracks, resonant shunts have been installed which permit the local induced currents to be shunted around the track relays and thus avoid disturbing the signal circuits.

Following the heavy sleet storm of March, 1914, which caused so much damage to the overhead wires in the eastern states, the railroad decided to put certain portions of its telephone and telegraph wires underground and this has now been done throughout the electrified zone. Along the main line this underground conduit consists of a 6 single ducts of 3-in. bore, part of which are clay conduit and part bituminized fiber. The conduit bank is protected with concrete on all sides. There are concrete manholes every 400 ft. or less. In order to minimize inductive disturbances from the traction circuits, the conduit is located as near the edge of the right-of-way and as far from the tracks as practicable, though in some places it is just beyond the end of the ties on the outside track.

On top of this bank of conduits, the main signal power feeder carrying 60-cycle, 3,400-volt current is carried, the lead-sheathed cable being run in a pump-log duct which is afterwards filled with pitch. In addition to the usual telephone facilities between substations and between the electric power director and the train despatchers, permanent telephone boxes are located at every signal bridge throughout the electrified zone and prompt, reliable intercommunication by telephone is possible between any parts of the whole system.

The design and construction of the electric installation was carried out by Gibbs & Hill, consulting electrical engineers for the company, in co-operation with the engineering department and the officials of the road. All construction except that of substation buildings and inspection building, which were covered by outside contracts, was carried out by a specially organized force. The mounting of the multiple unit car equipment on the cars was carried out by the railroad forces at the Altoona shops under the direction of the motive power department. The signal equipment and changes in telegraph and telephone lines were designed and installed under the direction of the signal and telegraph departments, respectively.

The following is a partial list of the manufacturing concerns which furnished the principal items of plant and equipment: Motor car equipments, transformers, etc., Westinghouse Electric & Manufacturing Company; structural poles and bridges, McClintic Marshall Company; tubular poles, National Tube Company; steel messenger, cross span and ground wire, J. A. Roebling's Sons Company; copper transmission and secondary messenger wire, Waclarke Wire Company; special bronze trolley wire, Bridgeport Brass Company; bonds, American Steel & Wire Company, Electric Service Supplies Company, Ohio Brass Company; insulators, Locke Insulator Manufacturing Company; catenary hangers, Adams & Westlake; block and automatic signal equipment, Union Switch & Signal Company; signal wire, Kerite Company; underground conduits, Edwin H. Vare, and electro-pneumatic air brake, Westinghouse Air Brake Company.



**Car Inspection Building at Paoli**

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PROPOSED IRISH RATE INCREASE.—Owing to increased cost of operation, notice has been given by the Midland Great Western Railway (Ireland) Company of its intention to increase (subject to the statutory maxima) the rate for merchandise traffic between all stations on its system for all classes. The altered rates are made effective October 1, 1915. The increases range from 2d. (4 cents) on rates exceeding 1s. (25 cents) and not exceeding 2s. per ton, to 7s. 5d. ($1.85) on rates exceeding 72s. 6d. ($18.12) and not exceeding 75s. ($18.75) per ton, while rates of 75s. per ton and upwards are to be increased 7s. 8d. ($1.90) per ton. The proposed scale of increase is very much higher than that introduced on English railways in July, 1913, which ranged from a ½d. increase on 1s. rates, to 3s. 1d. (77 cents) increase on 78s. 1d. ($19.50) rates, and 4s. increase on rates exceeding 98s. 11d. ($24.72).

# The Relations of the Railways and the Public*

## A Discussion of the Policy of Government Transportation Regulation, Both as It Is and as It Ought to Be

By L. E. Johnson
President, Norfolk & Western

I have accepted your invitation to address you in the belief that it indicates your interest in the railway problem That there is such a problem all agree, however much they may differ as to its true nature and proper solution; and it is a problem in which it is very desirable that the more intelligent and public-spirited of our citizens, such as those composing this society, shall actively interest themselves. Not only is it desirable that they should do this, but it is their positive duty. On the way the railway question is finally settled will greatly depend the welfare of the nation. Public opinion will determine whether it will be settled right. In order that public opinion may cause it to be settled right the public must have good leadership; and that leadership should be furnished by men such as you.

It is generally recognized that to solve the problem presented there should be changes made in the relations existing between the people and the governments of the states and the nation, on the one hand, and the managements and owners of the railways on the other hand. Some people believe these changes should be effected by the adoption of government ownership and management of the railways. Others believe the needed changes should be accomplished by modifications in the present policy of regulation, in which latter class I place myself.

### OBJECTIONS TO GOVERNMENT OWNERSHIP

I believe a majority of the people think at present that the adoption of government ownership would not promote the public welfare, but would have the opposite result. There are a very few countries, Prussia affording the best example, where state railways have been managed with a considerable degree of success, but in most countries both the economic and political results of government management have been bad. Forty years ago an Italian commission which had thoroughly studied the subject expressed the opinion that under government ownership politics would corrupt the railroads and the railroads would corrupt politics. This view has been supported by the experience of Italy itself and by that of France, of Australia, of Canada, and of every other country where the conditions have been such as to make it possible for politics to affect government management. Nowhere else, perhaps, has the deplorable influence which politics is almost certain in a democratic country to exert on government railway management been more strikingly illustrated than in our next-door neighbor, Canada.

Since 1867 the Dominion has owned and operated the Intercolonial Railway, and since 1873, the Prince Edward Island Railway. These lines now have a mileage of 1,734 miles. Never in a single year since the government acquired it has the Prince Edward Island earned even its operating expenses, to say nothing of interest on the investment in it. The Intercolonial in the 47 years it has been under government management has failed by $8,500,000 to earn its operating expenses, to say nothing of interest on the large investment which the people of Canada have made in it. Other railways in eastern Canada owned by private companies have charged practically the same rates as these government railways and have been operated at a profit.

In 1904 the government began the construction of the National Transcontinental Railway from Moncton to Winnipeg. The official estimate of its cost was $61,415,000, or $34,083 a mile. At the end of 1914 the line had not been provided with equipment or adequate terminals, and yet up to that time there had been spent on it $173,000,000, or about $99,000 per mile. A government commission appointed to investigate its construction denounced it as enormously wasteful, and the Grand Trunk Pacific, to which it had been intended to lease the line for operation, refused to take it over because it could not afford to pay three per cent interest on the excessive expenditure which had been made.

The explanation of the wasteful construction of the National Transcontinental is the same as the explanation of the wasteful operation of the Intercolonial. The work was done on political rather than business lines. The principle of the "pork barrel" had dominated the management and construction of government railways in Canada as it has the development of waterways, the erection of public buildings and a good many other matters in this country.

The experience of other countries and the conditions in our own warn us that we cannot afford to try the experiment of government ownership of railways here; at least, not until our government management would not be rendered impossible by politics of the "pork barrel" variety.

### THE ALTERNATIVE

There is only one alternative to government ownership. This is a system of wise and fair regulation. Railway managers are often accused of not recognizing this fact. They are often charged with being opposed not merely to effective regulation, but to any regulation. I deny this. I know the consensus of opinion of our railway managers, and I assert emphatically that they are not opposed to any regulation or to effective regulation, but that they appreciate the need of it and are as strongly and sincerely in favor of it as any other class of our citizens, because they know that this is the only alternative to government ownership, and as patriotic citizens they are opposed to government ownership. They would be in favor of it even in the absence of the danger of government ownership, because they recognize the fact that effective regulation, if it be also wise and fair, will promote the interests and protect the rights not only of the general public, but also of the owners, the officers and the employees of the railways themselves.

All intelligent railway men recognize the fact that there have been in the past shortcomings and abuses in the management of some, if not all, of our railways and that government regulation has helped to correct some of these. They concede that there are still such shortcomings and abuses and that government regulation can, and ought to, help to correct them. But they also believe that there are some very serious shortcomings and abuses in the present system of regulation; that in consequence it is doing harm as well as good; and that unless it is radically changed and raised to a higher plane of efficiency and fairness, it will fail in the long run to do much of the good that the public desires and will do much harm, which the public does not intend.

### MAIN PURPOSES OF REGULATION

The three main purposes of government regulation should be to further the economy, efficiency and safety of railway operation; to cause rates to be reasonable and non-discriminatory; and to make investment in railway securities safe and attractive.

It is generally recognized that regulation should seek to improve railway service and to make rates fair and reasonable. It is not so generally recognized that it should aim to improve railway securities as investments, but there are some very good reasons why it should do this. In the first place, if either railway management or government regulation is such as to make investors in general afraid to buy railway bonds and stocks, the companies will be unable to get enough capital to make their serv-

*An address before the Western Society of Engineers at Chicago on November 2, 1915.

ice good and adequate. In the second place, not only is the railway business a very large industry, but it is also one which can be put on such a basis as to make it both feasible and desirable for large numbers of people of small means to invest in it. The degree to which they will be thrifty is likely to depend largely on the opportunities open to them for the safe and profitable investment of any amounts, however small, which they may save. But the trend of our economic and industrial affairs for some years has been such as to reduce rather than to increase the number of the kinds of openings which formerly existed for the class of small investors. Corporate organizations have been growing in size and number and driving out the small concerns in which the small investor used to put his capital. The best subsittute we can offer for the opportunity to invest in small properties is the opportunity to acquire with reasonable safety small interests in large concerns, such as our railways and industrial corporations. This opportunity can be afforded only by having these concerns both managed and regulated honestly and wisely and in the interest of those who invest in their securities as well as in the interest of those who buy their goods and services or who are employed by them. There is just as much reason, from the standpoint of the general welfare, why our government should seek to make small investments in our industrial and railway corporations profitable and safe as why they should try to make small investments in our farms attractive and safe. The more widely the ownership of property in a country is diffused the more stable will be its institutions and the more certain its prosperity.

### METHODS OF REGULATION

If regulation is to be wise it must be done by bodies having some expert knowledge of railway matters. A commission may have such knowledge, but a legislative body cannot have it. If regulation is to be fair, it must be free from political and other influences that will tend to divert it from its proper purposes. A commission may be comparatively free from political influence, but a legislative body cannot be. For these and other reasons the function of regulation should be delegated chiefly to commissions.

A commission whose members are appointed for long terms is less likely to be influenced by political and other influences tending to impair its fairness and efficiency than one whose members are elected for short terms. Therefore, members of commissions should be appointed and their terms of office should be long. Indeed, I am inclined to believe that it would be conducive to their greatest fairness and efficiency if their members, like our federal judges, were appointed for life.

In most important respects, from the standpoint of the public, our railways constitute a single transportation system extending into every part of the country. Regulation should, therefore, be directed toward promoting the interests of the nation as a whole. But clearly, regulation should not be allowed to further the interests of some classes of the people at the expense of the people as a whole, or to promote the interests of some localities and sections at the expense of the country as a whole. Therefore, regulation should be made as consistent and uniform as is practicable, and regulation by communities and states should be subordinated to that of the nation.

Regulation should not be such as to make railways unprofitable, because this would hamper their development and thereby hamper the development and impair the prosperity of the entire nation.

These principles all seem obvious and fundamental. Are they observed as well as they should be?

### INCONSISTENCIES OF PRESENT REGULATION

There is not one of them which is not violated. The nation has created the Interstate Commerce Commission and 45 states have created railroad or public service commissions. Nominally, these are all expert bodies, and theoretically, the legislatures and Congress have delegated to them the function of regulation. In practice the legislatures and Congress at almost every session, without investigation, impose on the railways burdens and requirements affecting operation and rates, the desirability and reasonableness of which ought to be left to be determined by the commissions after investigation. Within the last four years there have been 3,016 bills introduced in the state legislatures for the regulation of operation alone, of which 436 have been passed. The members of many state railroad commissions are elected and, of course, in their election political considerations and not their special fitness for their duties govern. Even when they are appointed they often are selected, not because of their special fitness, but for political reasons. It is inevitable that bodies thus constituted should not be expert and impartial to the degree that they ought to be. The want of impartiality of some of them is illustrated by the facts that seven state commissions appeared as parties against the railways in the five per cent rate case and that 16 state commissions have appeared as parties against the railways in the cases involving advances in freight and passenger rates in western territory.

Furthermore, state regulation is usually controlled largely by local considerations and directed to the furtherance of the supposed interests of the people of the state at the expense of the interests of the people of the nation. Finally, almost all of our regulation is directed toward restricting the net earnings of the railways within the narrowest limits that the courts will permit.

As much of the legislation passed is enacted without sufficiently thorough previous investigation, it is necessarily arbitrary. As there is almost no co-operation between the various state commissions, or between them and the Interstate Commerce Commission, and almost no co-ordination of their activities, it naturally results that the requirements imposed on the railways are often inconsistent and even conflicting. As the legislation passed, and even the orders sometimes issued by the commissions, often are secured almost entirely at the instance of and under pressure from certain well-organized classes of persons, it is not surprising that their intent and effect often is to promote the interests of these classes at the expense of the railways and the rest of the public.

The inconsistencies between the regulation of the states themselves and between that of the states and the national government are illustrated by the fact that while numerous states have adopted legislation regarding train crews or headlights, the federal government has not done so, and that there are wide variations between the provisions of the laws of the states and of the nation regarding the hours of service of railway employees.

### DISCRIMINATIONS PRODUCED BY PRESENT REGULATION

The regulation of rates by the various states and by the federal government originally was intended largely, and in the case of the federal government, mainly, to correct unfair discrimination. It has produced a good effect by correcting many such discriminations; but it is now producing bad effects by actually creating other and equally unfair discriminations. For example, at a time when the interstate passenger rates of the railways in most parts of the country were three cents a mile, numerous states passed laws reducing state rates to two cents a mile. In some states railways got these laws set aside as confiscatory. In others, in order to avoid discrimination between state and interstate rates, they reduced the interstate rates also to two cents. In the five per cent rate case the Interstate Commission indicated that it believed that these low passenger rates were not yielding enough revenue to cover the part of railway expenses properly chargeable to passenger service and that the railways should raise them. The railways in eastern territory did raise the interstate passenger fares to 2½ cents a mile and tried to get the state legislatures to increase the state rates. This the legislatures did not do, and, in consequence, there has resulted an unjust discrimination between state and interstate travel brought about by the inconsistent policies of the regulating authorities representing the public itself.

There are likewise unfair discriminations in freight rates due to the same causes. In the Shreveport case the Interstate Commerce Commission called attention to the fact that an unfair

discrimination had been effected between certain state rates between certain points in Texas and certain interstate rates between Shreveport, La., and the same points in Texas, by the rate-making policy of the Texas railroad commission. Again, in the western freight rate case, it refused to allow certain advances in rates on live stock because certain of the interstate rates involved were already higher than corresponding rates fixed by legislative enactments or by the orders of state commissions.

If you turn to the field of regulation of the financial management of the railways you will find somewhat similar conditions. Practically all of our railway corporations have been chartered by the states which have created them. Some states have been lax in creating and regulating railway corporations. This laxity has left the door wide open for corporations created by these states to go forth into other states and handle their financial affairs in ways perhaps condemned by the public opinion of the country. On the other hand, other states, such as Texas, have imposed such stringent regulations on the financial management of railways within their borders as seriously to hamper their development and even to make them heavy burdens on the parts of the same railway systems in other states.

### INCREASED COSTS OF OPERATION AND DECREASED EARNINGS

The period during which the present system of regulation has been applied dates from about 10 years ago. This period has been, as you know, one of steadily and rapidly increasing costs of operation. This has been partly due to our policy of regulation, but mainly to the higher standards of service which the public has expected, to increases in taxes and to advances in wages which railway labor has demanded and which boards of arbitration organized under federal law have granted.

The 8 or 10 years prior to 1906 and 1907 were years of steadily and even rapidly increasing railway net earnings. Those since have been years of just as steadily and rapidly declining net earnings. This is not true of every individual road. There are a number of individual railways which, because of exceptionally good management or unusually fortunate situations, have continued to prosper, and some of them are even more prosperous than they were 10 years ago. But these roads are no more typical than are certain roads at the other extreme which, because of bad management or unfortunate situations, have declined into the depths of adversity. It is the situation of the railways as a whole, not that of individual lines, which it is important for us to consider.

According to the latest available statistics there are now 82 railways in the hands of receivers, having a mileage of 41,988 miles and a capitalization of $2,264,000,000. This is the greatest mileage ever in the hands of receivers in this country. It is a significant fact that the mileage of bankrupt roads is larger in proportion in the Southwest, where the policy of regulation has been the most repressive, than in any other section. Furthermore, the construction of new mileage and the improvement of the facilities of that already existing have been seriously curtailed. The new mileage built has shown a downward tendency since 1906 and was smaller in 1914 than in any year since 1895. There have been heavy reductions in the purchases of equipment and supplies; and, in consequence, many thousands of men have been thrown out of work in both the railway and the railway supply businesses and every line of commerce and industry has been adversely affected.

Now, I would not be understood as attributing the unsatisfactory conditions entirely to regulation. There would no doubt have been large increases in the operating expenses and taxes of the railways if the policy of regulation had never been begun. The great faults of regulation have been that, first, in many ways it has unwisely and unnecessarily enhanced the increases in expenses, and that, second, it has at the same time prevented most of the increases in rates which these increases in expenses made desirable, and, indeed, in the face of these increases in expenses, has actually compelled many reductions in rates. The average annual wage of railway employees was 43 per cent higher in 1914 than in 1898 and average taxes per mile were 140 per cent greater; yet the average passenger rate and the average freight rate were actually lower after these increases in wages and taxes had occurred than before. Under an entirely intelligent and fair policy of regulation the public authorities would have co-operated with the managements of the railways in their efforts to solve the problems presented by the great and rapid increases in their expenses and taxes. Under the policy actually followed regulation has made their problem more difficult and complicated, with the results just mentioned.

Now it may be said that the railways have brought upon themselves much of the trouble from which they are suffering. I admit that. On the whole, the managements of our railways have been as able, as honest and as efficient as those of any other railways or other large corporate business in the world. But, as I have already conceded, many mistakes have been made and many offenses have been committed by them. It is because of these things that, as railway men now admit, regulation became desirable for the protection and benefit of the public and even of the railways themselves. But is the fact that the managements of the railways have not always been wise and fair any reason for adopting and persisting in a policy of unwise and unfair regulation? Clearly not. Is it not evident that the policy of regulation which has been followed has not established, and is not adapted to establish, satisfactory relations between the railways and the public? Is it not evident that it has not been promoting, and is not adapted to promote, the purposes which regulation ought to promote? It is not making the operation of railways more economical and efficient. It is substituting new forms or unfair discrimination in rates for those which have been abolished. It is preventing rates from being so adjusted as to meet the increasing demands on railway revenues. It is helping to make railway securities unattractive rather than attractive both to the large investor and the small investor, and is forcing the railways to sell bonds to raise capital when they ought to be selling stock and to sell short time notes when they ought to be selling bonds, thereby rendering them financially top-heavy and incapable of weathering the financial storms which are sure to break over us in the future as in the past. In order to establish satisfactory and beneficent relations between the railways and the public, our regulation of railways, as well as our management of them, must be put on a sound basis.

### REGULATION SHOULD BE IN HANDS OF EXPERTS

The remedy for the defects in our policy of regulation seems to me obvious. It should not be destroyed, but it should be made less rigid and more flexible, less restrictive and more constructive, less the work of amateurs and more the work of experts. The legislatures should cease passing without investigation arbitrary laws for the regulation of features of the railway business with which their members, from lack of time and want of special knowledge, cannot possibly become competent to deal, and leave the performance of the function of regulation almost entirely to commissions. The commissions should be made in fact as well as in theory impartial bodies of experts. The state commissions should be restricted to the regulation of purely local and state matters and the Interstate Commerce Commission should be expressly authorized and required by law to overrule the state authorities when they adopt regulations the effect of which is to interfere with and burden the commerce of other states and the commerce of the nation as a whole. There may be reasons for applying some different rules in states in which the conditions differ as widely as they do in Massachusetts and Arizona; but there cannot be any good reason for applying widely different and wholly inconsistent requirements in states adjacent to each other, such as Nebraska and Kansas, or Massachusetts and Connecticut; and there certainly cannot be any good reason why a state government should apply one rule in a state and the federal government should apply an entirely different rule in the same state. Both these things are done now. There can be no good reason why a state passenger should be allowed to travel for two cents a mile in a state when the Interstate Commerce Commission has held that 2½ cents is a reasonable rate for interstate

travel in that same state, which is what is being done at the present time.

There can be no good reason why a state law in Texas, for example, should prescribe certain hours of work for railway employees engaged in state commerce when a federal law prescribes different hours for all railway employees engaged in interstate commerce, which is what is being done now, There can be no good reason why the Interstate Commerce Commission should hold that the earnings of the railways in eastern territory are not as large as they should be in the interest of the public, and that at the same time the states should be allowed to prevent the increases in earnings which the Interstate Commerce Commission holds should be permitted in the interests of the public. Yet this is being done now.

At the same time that state regulation is being improved and brought into a proper relationship of subordination to and coordination with federal regulation, there ought to be changes made in the organization of the Interstate Commerce Commission which will better fit it for the performance of its added duties. I personally would favor increasing the salaries of its members and having them appointed for life. Their duties are as important as those of any other officers of the government, and their positions should be made such that they will be attractive to the ablest men in the country and that the incumbents will be immune from political and all other improper influences. When these and other changes have been made which will strengthen the commission and increase its independence, I believe it would be both safe and desirable to increase its powers in several directions. If there is to be regulation of operation this should be done by the Interstate Commerce Commission. If there is to be regulation of the issuance of railway securities, as there already is in some of the states, the necessary authority, with proper restrictions, should be delegated to the Interstate Commerce Commission.

### I. C. C. SHOULD HAVE POWER TO RAISE AS WELL AS TO LOWER RATES

At the same time the commission should be empowered to raise rates which it regards as too low, as well as to reduce rates which it thinks are too high; and this power should apply to state rates when the commission regards them either as unremunerative or as working an unfair discrimination against interstate commerce. The commission is now greatly hampered in its regulation of rates by the fact that the law authorizes it to fix maximum rates, but gives it no power to fix minimum rates. The law requires it to make rates reasonable, but gives it no power to make them reasonable if the defect in them happens to be that they are unreasonably low.

Our policy of regulation has thus far been one-sided. It has been tacitly predicated upon the assumption that its sole purpose should be to protect the rights and promote the interests of those who use the service of railways and who work for them. It has too often ignored the fact that those who invest in railway securities are also a class of our citizens possessing exactly an equal claim to have their rights protected and their interests promoted by the government. What is even more serious and important, those who have been responsible for our policy of regulation too often have not recognized the fact that the interests of the patrons of the railways and their employees will suffer if the rights and interests of the investors in them are not protected and promoted. It is only by the investment of adequate additional capital in railways that their facilities may be sufficiently improved and expanded. Furthermore, it is only by the investment of additional capital in the railways that there will be created an increased demand for labor on them; and the increase in the employment they afford will be in proportion to the increase in the investment in them. Therefore the only policy of regulation of railways which will confer the maximum benefits practicable on each class that is directly interested and on the public as a whole will be one which will equally consider the rights and interests of the traveler, the shipper, the employee and the investor.

## STEEL GONDOLAS FOR THE RUSSIAN GOVERNMENT

Included in the car equipment, orders for which have recently been placed in this country by the Russian Imperial Government, are 5,000 steel gondola cars for general service, which are now being built at the McKees Rocks (Pa.) plant of the Pressed Steel Car Company. The design of these cars was prepared by the builders, and aside from the couplers and buffers, which are of the type generally used in Europe, and are the Russian standard, it follows very closely a similar design built for service on American railways. The car is 8 ft. 11 in. high from top of rail to top of sides, and has a length of 44 ft. 4⅛ in. over the buffers. The rated carrying capacity is 50 metric tons, about 110,000 lb., and the light weight about 46,000 lb. One of the requirements is that the car must stand a test load of 75 metric tons uniformly distributed without permanent set, a requirement which the completed car has satisfactorily met.

The bodies are 40 ft. long by 9 ft. 6¾ in. wide by 4 ft. 4 in. high inside. Drop doors are provided in the floor on both sides throughout the length, making the car about 99 per cent self-clearing when loaded with coal or similar material. The doors are operated by the Pressed Steel Car Company's creeping shaft device, and rest directly on the shafts when in the closed position. The chains, which wind on drums, are only employed for lifting the doors and to hold the shaft in place under them when in the closed position, stops being provided to engage both sides of each door when they are dropped. The ends are made of 2¼-in. planks, reinforced all around with 2½-in. by 2½-in. by ¼-in. angles bolted to them. They are secured with links at the end sill in such a manner that they may be dropped into the car when not required, thus facilitating the transportation of long materials.

The center sill construction is continuous from end sill to end sill, and consists of two 5/16-in. bent plates riveted to a 4-in. rolled tee at the top and each reinforced at the bottom with a 3½-in. by 3½-in. angle. Malleable iron center braces are provided at the bolsters and pressed steel braces at the cross ties. The end sills are ⅜-in. pressed steel, reinforced with pressed channels extending between the side sills and center sills. They are braced at the rear of the buffers with pressed channels, which transmit the major portion of the buffing shock to the center sills. The bolsters and cross ties are pressed diaphragms reinforced with plates and angles.

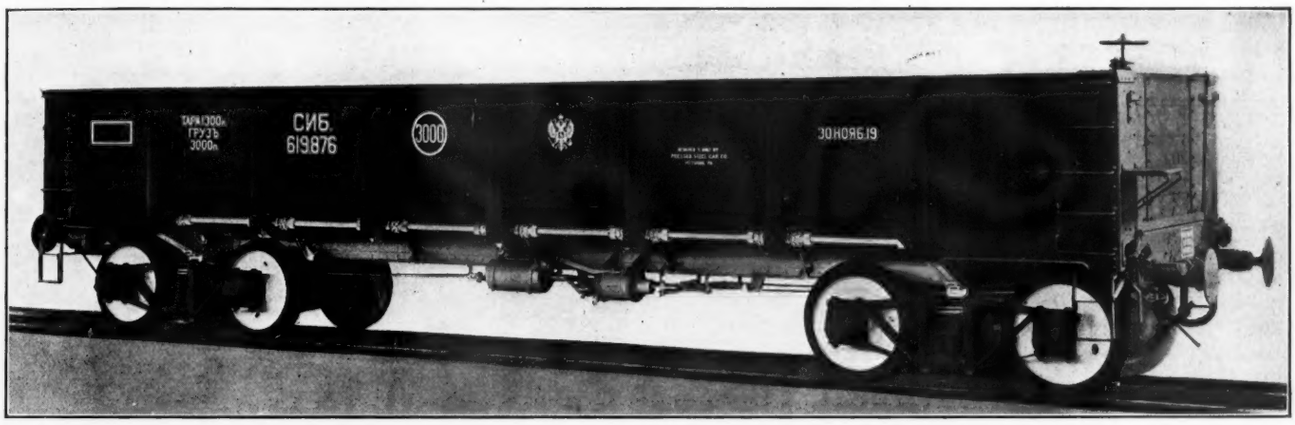
The sides are ¼-in. steel plates in three sections, supported by seven pressed steel side stakes located at the bolsters and cross ties. They are reinforced at the top with 4-in. rolled steel bulb angles extending the full length of the car. Near the bottom the side sheets are sloped in at an angle of about 60 deg.; the lower edges are flanged outward, and rest on the end sills, bolsters and cross ties, to which they are riveted. The bottom of the flanges are flush with the lower side of the cover plates on the bolsters and cross ties, thus permitting the doors to be tightly closed all around.

The drop doors, of which there are eight on each side, are made of ¼-in. steel flanged on all sides, and supported on three forged hinge straps which are pin connected to malleable iron hinge butts riveted to the center sills. Besides the hinge straps, there are two 2½-in. by 2½-in. by 3/16-in. angle stiffeners extending crosswise of the car and one 3-in. rolled Z-bar extending lengthwise of the car, near the outside, on each door. The door stops are placed to secure a discharge opening about two feet deep between the trucks, but due to the large diameter of the wheels, the openings over the trucks are somewhat less.

The Russian Westinghouse air brake equipment with 10-in. cylinders is being applied. Although it is generally similar, it differs somewhat in detail from the freight car equipment used in this country. The foundation brake rigging closely follows the standard practice in this country, but involves the use of a tension spring to insure proper release of the brake shoes. The couplings are the hook and link type, each made up of nine drop forgings of special heat-treated steel. The finished coup-

ling is required to withstand a test load of 30 tons without permanent set. The side buffers are Russian standard, except that coil springs have been used in place of volute.

The trucks are of the arch bar type, having a 6-ft. 3-in. wheel base, and follow the lines of the M. C. B. standard construction, though somewhat larger, due to the use of 41 5/16-in. wheels and 5-ft. gage. They have bolsters of the pressed steel bath tub type with cast steel center plates of M. C. B. contour and adjustable malleable iron side bearings. The journal boxes are malleable iron of M. C. B. type, with drop forged wedges. The arch bars are 6-in. by 1¼-in. open hearth steel, and the tie bars are 5-in. by ⅝-in. They are secured to cast steel column posts with 1¾-in. bolts, and to the journal boxes with 1¼-in. bolts. The wheels are rolled steel with flange and tread of the Russian standard, which differs only slightly from the M. C. B. standard contour. They are being manufactured by the Carnegie Steel Company, and weigh nearly 1,200 lb. each. The axles are of steel with journals, collars and dust-guard fits the same as the standard M. C. B. axle for 100,000-lb. capacity




**Russian Government Steel Gondola of 110,000-lb. Capacity**

cars. Except for the increase in length because of the wider gage, the principle difference is in the wheel fit. Instead of the collar, which forms a shoulder back of the wheel hub, the axle is reduced in diameter at this point below the diameter of the wheel fit.

After being built, the cars are knocked down, packed and shipped to New York, going by water from that port to Vladivostok, via the Panama canal. At Vladivostok they will be assembled and placed in service.

## ENGLISH RAILWAY MEN'S WAR BONUS

The general managers of the English railways have recently come to an agreement—the third—with their employees "engaged in the manipulation of traffic," whereby there will be a further increase in the war bonus amounting to $15,000,000 or $20,000,000 yearly for the remainder of the war. It will be remembered that last February (*Railway Age Gazette*, March 12, 1915, page 447) the English railways made an adjustment with the National Union of Railway Men and the Associated Societies of Locomotive Engineers and Firemen calling for an increase in wages or a bonus to compensate for the increased expenses arising from the war. The amount was fixed at 3s. (75 cents) a week to employees 18 years of age and older embraced in the "conciliation scheme" whose regular rate of wages was under 30s. ($7.50) per week and 2s. (50 cents) to employees who received 30s. or more. This arrangement was effective February 15, but there was a clause providing that the adjustment might be reviewed at the end of three months. In June, accordingly, the matter was again taken up and the continuance of the bonus on the same basis was agreed to, subject to the extension to boys of an allowance of 1s. 6d. a week.

The settlement in June was thought to be final, but because of a certain amount of unrest negotiations were again begun with the result that, effective October 23, the bonus paid under the February and June agreements has been revised as follows:

| | Present bonus | Revised bonus |
|---|---|---|
| | per week | |
| Employees 18 years of age and upwards whose standard rate of wage is 30s. per week or more | 2s. | 5s. |
| Employees 18 years of age and upwards whose standard rate of wage is under 30s. per week | 3s. | 5s. |
| Employees under 18 years of age, except boys engaged since January 1, 1915, at rates of wages which exceed by 2s. 6d. or more the rates usually paid to boys occupying positions similar to those in which such newly-engaged boys are working | 1s. 6d. | 2s. 6d. |

The arrangement is on the flat rate basis and differs in that respect from the previous settlements, which provided for larger bonuses to the lower rated men.

The revised arrangement is to remain in force until notice shall have been received by the railways from the government discontinuing the present control agreement whereby the railways are being operated for the nation by a committee of general managers. It shall thereafter be subject to discontinuance by one month's notice on either side, it being provided that thereupon the "conciliation scheme" will again be put in operation. It is hoped that this adjustment will be final, the two unions having undertaken "that during the pendency of this agreement they will not present to the railway companies any fresh demands for increased bonus or wages or general alterations in conditions of service, and that they will not give countenance or support either to a demand on the part of any of their members to reopen the settlement now made or to any strike that might be entered upon in furtherance of such demands."

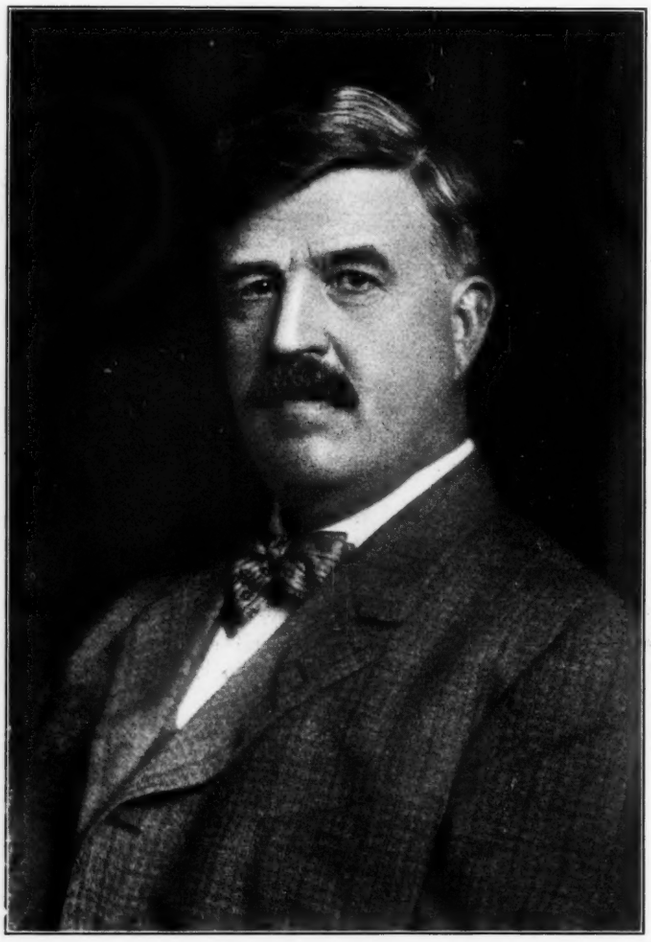
As in the former case the railways will probably extend the bonus to employees not in the "conciliation scheme." The estimated cost of the bonus hitherto paid to the entire staff was about $20,000,000 yearly. The increased bonus will bring this up to from $35,000,000 to $40,000,000 yearly.

ENGLISH RAILWAY MEN AS MUNITIONS EXPERTS.—Three of the principal officers of the North-Eastern Railway of England are now engaged at the ministry of munitions. E. C. Geddes, deputy general manager, and lieutenant-colonel in the railway and engineer staff corps, is one of Lloyd George's principal assistants; temporary lieut.-colonel R. L. Wedgewood, chief goods and traffic manager, lately acting as deputy director of railway transport in France, has been recalled to an appointment in the munitions department; and Vincent L. Raven, chief mechanical engineer, has been appointed acting chief superintendent of ordnance factories at Woolwich. Mr. Geddes served in the operating department of the Baltimore & Ohio from 1890 to 1895 and later served for a number of years in India. Mr. Raven has been chief mechanical superintendent since 1910.

## HENRY U. MUDGE

Henry U. Mudge, president and chief executive officer of the Chicago, Rock Island & Pacific, resigned on November 5, and is to be elected president of the Denver & Rio Grande, with office in Denver, Colo., succeeding Arthur Coppell, of New York, who was elected president temporarily on November 4, in place of B. F. Bush. Mr. Mudge was expected to be elected at the meeting last week, but it was found to be necessary first to elect him a director.

Mr. Mudge has been connected with the Rock Island since May 1, 1905, when he became second vice-president in charge of operation. He was elected president on December 1, 1909. He was appointed co-receiver of the property on April 19, but resigned that position on September 28, and was immediately appointed chief executive officer at the request of Receiver Dickinson that he remain in charge of the operation of the road.



Henry U. Mudge

As explained in a statement issued by Mr. Copell after the meeting last week the directors of the Denver & Rio Grande have decided that the best interests of the property will be served by having a president who can be located in Colorado and who has no connection with other roads. Recently the president of the Denver & Rio Grande has held the same office on the Missouri Pacific, the Iron Mountain and the Western Pacific. It is understood that a compromise has been arranged with the holders of the Western Pacific bonds, the interest of which was guaranteed by the Denver & Rio Grande, which will relieve that road of a part of its liability and make possible a reorganization of the Western Pacific.

Before going to the Rock Island most of Mr. Mudge's railroad experience had been with the Atchison, Topeka & Santa Fe, on which he started at the age of 16 as section hand and water boy on construction work, and which he left in 1905 as general manager.

In taking charge of the operation of the Denver & Rio Grande, Mr. Mudge, therefore, will be returning to a territory with which he has been familiar throughout his career, and in which he was particularly engaged for many years as superintendent of the Rio Grande and Western division and later as general superintendent of the Western grand division of the Santa Fe.

While working in the construction gang he learned telegraphy and soon became an operator. By hard, conscientious work and painstaking mastery of details successive promotions came rapidly, but naturally, and without any spectacular jumps, so that when Mr. Mudge became a general officer he had had a thorough experience in every branch of the operating department, in the telegraph office, in the train service, at the despatcher's desk, and as roadmaster, trainmaster, assistant superintendent and superintendent.

Mr. Mudge to an unusual degree has always been popular with and possessed the confidence and respect of his subordinates, and as a president his democratic manners, his fairness and practical common sense, and his open and above-board methods of doing business have made him especially popular with his subordinates and associates in the railroad field and with the patrons of the road. Newspaper men have always liked Mr. Mudge because there has never been any difficulty in obtaining from him a candid and fair statement of any situation that figured in the news of the road, and because he has usually been willing to give the news when it is news and without waiting for the disentangling of official red tape.

Whatever may be said in criticism of the Rock Island's financial transactions can by no means be applied to its retiring president. It is rather on the Rock Island's record for operation, under the conditions it has had to face, that he is to be judged. As Receiver Dickinson pointed out in a statement to the public following Mr. Mudge's resignation as receiver, "it should be understood that there was a marked differentiation between him and most of the other directors, in that the transaction for which he voted as a director was presented and acted upon at a meeting at which he was elected a director, and immediately upon his election, and also in that he was not a stockholder either of the Rock Island Company of New Jersey or the Chicago, Rock Island & Pacific Railroad Company of Iowa." The syndicate purchase of the Rock Island, the reorganization of its board and the organization of the two holding companies took place in 1901 and 1902, and the purchase of the Frisco and Alton stock in 1903, all while Mr. Mudge was general manager of the Santa Fe, and in no way connected with the Rock Island while the other financial transactions criticized by the Interstate Commerce Commission were either accomplished before he went to the road, or before he became a director, with the exception of the sale of the Frisco stock, to which Receiver Dickinson referred in the statement.

Mr. Mudge was born on June 9, 1856, at Minden, Mich., and was educated in the common schools. He entered railway service in 1872 as a section hand and water boy with the Atchison, Topeka & Santa Fe, and soon became telegraph operator. He later held various positions in the operating department until July, 1889, when he was appointed superintendent, and in May, 1893, became general superintendent of the Western grand division and then of the Eastern grand division of the same road. From February 1, 1896, to January 1, 1900, he was general superintendent of the reorganized property. On January 1, 1900, he was appointed general manager of the same road, and on May 1, 1905, left to become second vice-president of the Chicago, Rock Island & Pacific. During the past year he has been president of the American Railway Association.

# Selling Railway Supplies to European Countries

## Our Manufacturers Must Germanize Their Foreign Sales Methods and Observe a Broad Spirit of Square Dealing

By Walter S. Hiatt
Our Special European Correspondent

The United States has at last become the creditor of Europe. A precedence in international business has been thrust upon us and at last we have our great chance. How shall we use it?

Europe must obtain from us not only war munitions and supplies, food and clothes, but also the necessities of reconstruction, for it is not too much to say that the reconstruction period has already begun. Despite the secrecy maintained about such matters now, it is known that at least $10,000,000 worth of railway supply contracts has already been awarded in France alone, and it is certain that during the next two years the manufacturers of American railway materials of every description will find in Europe an ever-extending market for their products. Owing to the wear and destruction of railway material resulting from the war, American manufacturers will be called upon to do a large part in rebuilding the European railways and in re-equipping them with freight and passenger cars and locomotives.

Photo by Henri Manuel

**Women Turning Out Shells in Short-Handed Factories in France Where Machinery of Peace Was Once Made**

While every factory in Europe is occupied in turning out war munitions, and every man is either at the front or busy behind the lines in the factories making cartridges, bombs, shells, cannon, there is little energy available for the work of peace. This does not apply to France alone, although in that country for nearly a year railway supply factories and even the railroad shops have been occupied with war work, and now every factory possible is turning out aeroplanes, shells, ammunition or cannon. This condition applies also to Germany, where for at least a year every factory in the empire has been busy along the same lines and in a greater degree. It applies to Russia, where the factories and shops have always been comparatively few. It applies to Austria, and to a large degree in England, where 500 factories of all kinds are working overtime to turn out war material.

But while Europe *must* buy machine products from the United States, our manufacturers will not profit to the full from this opportunity if they do not observe a few sane rules. They must learn to do business in Europe's way. They must study tariffs and ocean freights. They must not use the opportunity to turn out poor and imperfect material. They must overcome the prejudices that naturally arise between people who are not accustomed to do business together. They must not expect to get rich at once, or to do a billion-dollar business. They must not take the attitude that Europe will trade willy-nilly, for thereby they will curtail their orders and will kill off the future business that may come long after the war is over, since Europe will even have to rebuild her machine shops, buy new tools and new machinery for the making of the ultimate product.

The American must understand that Europe would rather not buy from us, and we can't blame the Europeans. The American must understand that we are looked upon as neutrals who are enriching themselves at the expense of the misfortunes of others. This feeling is just as strong in Germany as it is among the allied nations. In Italy, when you tell people you are an American, they turn up their noses, so to speak, and ask why we don't come over and help whip the terrible Austro-Germans. In Germany they say to you: "We've always been friends, we've traded together for many years, we are almost blood allies, and yet you Americans in order to make some money desert us and go over to the Allies."

In France people are more polite about it. They don't *say* anything at all. Recently I was walking through a hospital train with Herbert Corey, the newspaper correspondent and humorist. All the soldier hospital men were quite courteous and smiling, despite their private griefs. "You don't have to guess twice to know what these fellows *think* of us," said Mr. Corey. "They think we should have a gun in our hands pointed at the Germans. And the worst of it is, that's what every German *said* when I was over the frontier."

To get down to business details, the American firm that wants to sell in Europe has a lot of other prejudices to overcome. First of all, it must learn how to write a business letter in the European way. Then it must learn that an agent right on the spot is the only medium of getting business, that one country is enough for the agent to conquer at a time, and this agent should speak the language of the country, that he should learn the country's ways, and should learn to do business without intermediaries, crooked or otherwise. Of course, this agent should be an American who thoroughly knows his own firm, its products, and those of its competitors. Further, this agent should be fully

accredited, should have European bank references to inspire confidence in him and in his firm's ability to keep a contract honestly.

### DEALING WITH GO-BETWEENS

A book might be written on the question of intermediaries alone. So far we have looked too much on the amusing side of this question. Much of the harassing part of war sales has come through experiences with these intermediaries. Not representing anything or anybody, their main object in life is to get some quick money. The quickest way they know of is to find what concern is about to be awarded a contract, to get this information a week or so ahead of anybody else, and then inform the concern's representative on the ground that he will get the contract if he will agree to pay a commission to the intermediary, who generally claims he must divide it with the firm, railroad company or government awarding the contract. If there is no agent on the ground the intermediary cables the firm direct.

What is the firm or agent to do? A lot of honest time and money has been spent trying to get that contract. Generally the intermediary is given the benefit of the doubt and gets the commission. I will not say that he does not sometimes or often divide it with the agent of the purchaser. It is a common practice all over Europe, for instance, to make presents at Christmas or New Year's, or on other occasions, to buyers. But in the case of railroad purchases, which are made by the chief of a department, as sanctioned by the president of the road, it is hard to believe that these men would accept this sort of money. The first purpose of these men must be to make purchases that will be a credit to the road, that will stand up under long wear, and if the material is faulty both the buying engineer and the selling firm are injured in reputation.

The experience of the American agents I have talked to varies. One man selling artificial limbs on large orders made up his mind when he came not to promise a cent of commission to anybody, and he has gathered all the business he can handle. Another man, representing a group of New England firms, after six months of feeling his way has come to the conclusion that it is best to smooth the way by presents to the smaller fellows and commissions to the more important ones. He claims that otherwise the selling agent is merely listened to politely, given a hearing but not the order, that the buyers do not look on such commissions as plain graft but as payment for a service rendered the seller in getting a contract.

There is another side to the question of doing business through an intermediary, particularly when the latter is not an employee of the government or company making the purchase, but rather merely a person with friends at court. He may lose a good contract for a selling agent. He is generally a native of the country where the business is being done and he is pretty well known. If he openly introduces an agent to the buying engineer, for instance, that engineer may at once be prejudiced against the agent. Further, the buyer realizes that this hanger-on is known to others and that if the contract is closed he, as buyer, will get the credit of having been involved in a shady transaction.

### WHEN GO-BETWEENS INJURE A SELLER

It was because of these under-the-table deals, manoeuvered by dishonest and unscrupulous natives of European nations at war, that each of these governments has finally been forced to jail some of its buying agents, that in England the native manufacturers are now only allowed a profit of 10 per cent on their output of government supplies, that in Russia, the home of honest graft, some of them have been shot, and that France, which originally sent a commission to New York to do its buying, finally placed all its contracts in the hands of J. P. Morgan & Co.

I know of one very fine American, honest as the day is long, who has been trying since last spring to sell a certain badly needed product in Europe and on very advantageous terms of credit to the buyer. Not speaking any foreign language, in the beginning he took into his confidence a certain group of intermediaries who had established offices in one of the big European cities where they were trying to sell war and other materials of all kinds. This good American located his offices with this group, and to date he has done very little business and will probably never do much. He is in bad company, and in so deep he cannot get out. The little business he has done has been so shared that his profit will be next to nothing. He will probably go home at last believing that all European business men are dishonest and that he failed to do a reasonable business because he did not offer their price.

Every American consul, every one of Uncle Sam's commercial agents from the Department of Commerce and every American business man one meets in Europe has a stock of incidents to tell about these intermediaries. A member of one Chicago firm spent three months in Europe trying to sell his product. When he was about to give up in disgust his home office cabled him that a large order had just been placed through another agent. This other agent proved to be a pharmacist who, learning of the contract, had taken the firm's name at random out of a directory, cabled for its prices, and on the basis of it submitted a bid.

Another American agent wanted to sell a certain line to the Belgian army. As he had a German name, his bid was rejected. However, a French grocer, having put in a bid, was awarded the contract, which he turned over to the man with the German name. Incidentally, he got a higher price.

### SELLING OF RAILWAY MATERIAL

Of course, many of these incidents relate to army supplies, the selling of which can hardly be called business. In selling machinery and railway supplies a different class of men is met. The buyer knows exactly what he wants, though he is not so sure about the price, since the new elements of high ocean freights and inflated war prices have entered into the sales. For instance, an American agent for car axles heard that a certain Italian railway was in a hurry to place a large order, but desired advance samples. As he had no samples with him, he picked up one of French manufacture that corresponded to that made by his firm, packed it and labelled it as a transoceanic shipment from Havre, and sent it on to Italy. He received a polite reply from the Italian company stating that when he was ready to submit an American sample his bid would be considered. The Italian buyer had at once recognized the axle's make.

This American agent was acting in good faith, and would have delivered an axle up to specifications, but such methods are discrediting. Indeed, the American agent is at present in a difficult position. His only competitors worth considering are the English, and the English have had scores of years of Continental selling experience, while the American is only learning. Then, the American is an unknown factor to the European buyer. The latter probably has never been in America, he doesn't know our reliable firms, and he doesn't understand American terms, except in such simple materials as car wheels or axles. The very rapidity with which the American agent is willing to do business; his push, bordering on bluff; his evident intention to do business in spite of every obstacle, tends to bewilder the European when it does not arouse his suspicion.

If the American hastily concludes that because one Italian or one Frenchman is willing to take money, all the high officers of a railway are dishonest, it is not unreasonable to suppose that these same high officials entertain their doubts of the American. Neither knows the ways of the other, but he establishes in his own mind an opinion as to the kind of a person with whom he is doing business. Neither has yet learned that, as a general rule, the high officials of a factory or of a railroad on either side of the water are probably men of sterling character and of absolute integrity. I personally have found that there is nowhere on earth a better type of business man than the high-grade Spaniard, Englishman, Frenchman or German. It may take some time to discover this man, just as it would for a foreigner to discover such men among us, but once you find him you can depend on him.

While this article is being written the French railways are concluding arrangements to make large purchases of material in

the United States. Notwithstanding that there are a few American railway supply men in France, the buying agents of these roads are bewildered. They do not know where to go to place their bids and do not know what American firms can be relied on to keep their contracts. In one case, the officers of a road, knowing the *Railway Age Gazette* as a standard publication, took a list of names from among its advertisers and asked these firms to submit bids. Then they asked all the American railway men with which they were acquainted to give them impartial advice on the reliability of the firms, and yet these were firms that are supposed to have an international reputation.

Of course, the contracts are being made on a cash delivery basis, with each party putting up five per cent of the value of the contract in money as a guarantee; but what the Frenchmen wanted they wanted in a hurry. They wanted to be sure of having deliveries on time and in good order. This difficulty of getting together on the same plane is one of the chief things American agents must overcome, and only time and fair dealing will do it. These conditions are a combination of inertia, lack of information, and a grain of suspicion. Take the case of sales of American coal abroad this winter. France, Italy, Spain, perhaps Switzerland, must wind up by buying our coal. Yet they are putting it off as long as possible, meanwhile using up their old stocks. Some are securing small quantities from England in the meantime, simply because they know how to do business with England and know English coal in English terms. Aside from the question of price, into this coal selling enters an equation that arises in the sale of any material or product. The French have become used to briquette coal; that is, coal delivered to the consumer, not loose, but in small blocks, and it is natural that this coal is preferred to loose coal, although the latter is cheaper.

### OVERCOMING FOREIGN PREJUDICES

The business of selling seems to be merely a matter of price agreements, with one party able to pay and the other able to deliver. Yet as many elements enter into this business as in the manufacture of a highly specialized article. I went into the subject of American sales with the director of one of the French railways, a man whose position corresponds to that of a general manager with plenary powers in the United States. He pointed out many reasons why the French, at least, should be able to trade with Americans, one of which is the similarity of national temperament. The average American and the average Frenchman, he said, were cordial in manner, rather talkative, frequently permitting sentiment to enter into a business transaction, as opposed to the strict aloofness of the Englishman and the heaviness of the German.

So at once it is seen that personality enters into a business agreement. Analyze personality and you will find its relationship to politeness and the manner of presenting a proposition. The personality of the Frenchman forms one of the chief difficulties of selling to him. His personality prevents him from buying an article that everybody else has or that pleases all others. If he has never fully acquired a liking for moving pictures, chewing gum, or the telephone to the same extent as other nations, the explanation is found in his personality. Possibly this is why he would rather repair an old locomotive than buy a new one. If he buys an automobile, he wants it built to suit his individual taste, and the same factor enters into his purchase of a steel rail or a crane or a car. Given this matter of personality, consider also that French machine models are different in detail from American makes, and some of the difficulties of selling are understood.

Of course, the war and the need of immediate deliveries have modified the conditions and standards of normal times. The war brings in new conditions. For instance, one large order for freight cars made this August was contracted for delivery at some French port. In a second and larger order from an American firm it was stipulated that the cars not only be delivered at some French port, but that labor be furnished to put the parts together and set up the cars ready for use on the tracks. This condition was made partly because of the scarcity of French labor and partly because Frenchmen, being unused to the cars, might find difficulty in setting them up.

Of the large contracts already awarded in France for railway material some went to English firms despite the evident desire of the French to buy in America and their need of using advantageously their part of the recent Anglo-French loan. The American firms that went without the business failed partly because of their lack of information as to how to get it. Of course, with ocean freights four times as high as in peace times, and with the United States criminally lacking in her own ships, a big difficulty at once confronted every American firm after this business. Some of the firms lost the business because they sought it by mail, because they did not have the right kind of agents on the ground, or because they did not co-operate with their agents. If Europe knows little of us, we do not know much more about her ways. Some firms, for instance, submitted bids in English and sent their letters under a two-cent or a four-cent stamp, neglectful of the fact that foreign letters carry foreign postage. This last may be due to the ignorance of a stenographer, but it is a detail that no European firm would overlook. I saw some dozens of such letters thrown into the waste-basket.

### GIVE YOUR AGENT A HELPING HAND

Occasionally agents sent over to get business are not given proper bank references, and frequently are not furnished with funds to keep them for the months they must be on the job. I have heard many stories from both Europeans and from Americans long established in Europe about the failure of American firms to get business.

I think one reason is that the American does not mix enough with the people of the country, he does not attempt to make serious acquaintances and friendships among them so he can learn their habits of thought. Instead, like the English, he sticks too much to other Americans and hence goes around in a worn little circle that is not in contact with the ways of the country.

Sometimes the failure to get business is the fault of the agent who succumbs for a few weeks after his arrival to the night life of the big cities. He suffers a relapse after this period of fast living, becomes homesick, lonesome, neglects his opportunities, and then goes home declaring it is impossible to do business with foreigners.

Sometimes the failure comes because the firm at home does not hold up its end. Now that the war is on, letters and cables are apt to go astray, and a lost message may be very important to the man on the ground, though it may seem of little consequence to the man in the office at home. Business people in Europe, in peace time as well as war time, make a practice of duplicating their letters and often of repeating their cables so that one or the other will be sure to arrive at its destination. They number each letter, they also confirm any previous letter received or sent so that their correspondent will know in just what state the correspondence stands. The larger houses number their cables as well. A neglect of these details discourages and disgusts the agent and results in confusion, misunderstanding and failure to get business.

Firms that wish to do a permanent European business would do well to study the methods of the International Harvester Company, which has done a handsome business here for a number of years in agricultural implements. It has an American as a head sales agent, who in turn employs traveling men native to the country who deal directly with the buyer. Another good example of such successful methods is found in the case of the American typewriter manufacturers, who have been established in Europe for the past dozen years, and have competed with French machines despite the maximum tariff on American manufactures.

The manufacturer who is told that there is no business in Europe for him might consider the success of an American laundry machine man. This man came to Europe for pleasure some years ago and discovered that at his hotel he could not get

his laundry back overnight, as in an American hotel. He traveled about for a time, talking to hotel men, studying European laundry methods, and finally set his agents to work and established a line for which there was apparently no demand and against which there were many prejudices. I recently saw some of his machinery doing the laundry work for the passenger and sleeping cars of one of France's railroads.

I have noted but one important American railway supply company properly established on the continent. While it has offices in London, as have several other such companies, its officers understand that London is as far away from the continent for business purposes as is Chicago from New York. Nearly a year ago it foresaw the war and the reconstruction business and sent over a trusted American representative to open offices and begin to lay the groundwork for contracts. This firm backs up its agent in every detail. This agent takes small orders, waits for the big ones, and the result is that he is getting more business than he expected and in the long run will have a near-monopoly of American contracts in his line. Will his competitors wonder why?

It is the failing of Americans to wish to give good advice, to tell the other fellow how best to run his business. Recently a writer in a financial publication, after some European observation, advanced the opinion that America would be called upon to reconstruct the peace machinery of Belgium and France, but that the sales would end after a few years because of the after-the-war competition and the low wages that would prevail because of the poverty, and the consequent low cost of production. This writer neglected the very patent reconstruction needs of Germany, of Russia and of other countries. His reasoning seems hardly in keeping with many facts. But accepting it, these few years of business will mount into hundreds of millions of sales.

If the manufacturers and the business men of the United States would profit fully from their situation as representatives of the most fortunate of peoples, if they would distance the growing war-fed prosperity of England, and if they would now lay the foundation for the after-the-war prosperity and activity of Europe, they must really build their own ships, they must further educate themselves internationally and they must lay aside loose talk about Europe going flat broke after the war, for it won't, not even Germany. In short, they must Germanize their foreign sales methods. And with all this, they must retain their fine spirit of charity and helpfulness, of square dealing, of giving the other fellow a chance to make an honest penny, which the Germans would not.

While too many Americans, like too many Frenchmen, Russians, Englishmen, Hollanders, Norwegians, Swiss have sought to squeeze every cent of profit out of war sales, to get rich through the sorrows and burdens of distracted Europe, some Americans have sold as honestly as they could. One American automobile firm has all through the war given automobiles on request to transport the wounded, and this fact is now widely known. Is this not a fine business asset?

## MOVING MEXICAN TROOPS BY RAILROAD

A movement which was unique in the history of American railroading took place on October 28 and 30 when the Texas lines of the Southern Pacific and the El Paso & Southwestern were called upon to handle a body of federal Mexican troops from the boundary line at Eagle Pass, Texas, through the United States to Douglass, Arizona, where the troops were needed by the Carranza forces to oppose an expected attack by the army under General Villa on the border city of Agua Prieta.

The troops were moved in eight trains, two freight and six passenger. There were 5,199 Mexicans, with an escort of 259 United States troops.

The equipment required consisted of 8 baggage, 79 coaches, 8 tourist, 29 box, 2 flat, 26 stock cars and 1 armored car.

While notice of the movement was rather short, and came at a time when there was a heavy excursion business, as well as movements of United States troops in the same territory, the entire equipment was furnished and assembled by the Southern Pacific without delay, many of the coaches being handled a distance of 738 miles to the loading point. Eagle Pass, the border point at which the movement originated, is located on a branch line 378 miles from Houston, where the general headquarters of the Southern Pacific (Sunset-Central lines) are maintained, and 169 miles from the headquarters of the division. The distance did not, however, hamper the railroad officials in the prompt and efficient handling of this movement, the eight trains being made up, loaded and moved out between 6:30 p. m., October 28, and 2:05 p. m., October 30. The last train reached Douglas at 3:30 a. m., November 1.

An interesting phase of the movement is the location of the lines of these roads, which for several hundred miles border on Mexican territory under the control of General Villa. While it was the intention of the government and the railroad officials that the prospective movement be given no publicity, a newspaper despatch from Eagle Pass gave advance notice, and it was rumored that attempts would be made by Villa sympathizers to cross the border and interrupt the movement by dynamiting bridges or wrecking the trains. This contingency was provided against by thorough patrolling of the tracks by United States troops, and the entire eight trains went through without interruption.

## BUELL'S CAB SIGNAL AND AUTOMATIC TRAIN STOP

The cab signal and automatic stop system of J. W. Buell, which has undergone tests on a passenger locomotive of the Cincinnati, New Orleans & Texas Pacific for many months, has proved so satisfactory in its operation that the proprietor has offered it to the Interstate Commerce Commission for test by the engineers of the commission. He reports that in some hundreds of tests of the distinctive features of the system, there has been no failure except on the side of safety. These tests have not included application of the brakes, but in every case the brake-applying valve has been opened and air exhausted, the same as would be the case in regular service, the exhaust being from the main reservoir instead of from the equalizing reservoir as in actual operation. Neither have the tests included track relays, the aim being to get a large number of operations, which, under ordinary conditions would not be possible, the road being clear, usually, for the express trains on which the tests were made.

This system operates by means of an electric circuit from a battery in the cab, through the wheels of the locomotive and the rails of the track, the front truck of the locomotive being insulated from the main frame. With this arrangement this circuit is normally closed through that part of the track which for the time being lies between the rear truck wheel and the front driving wheel; and the electro-magnet in the circuit holds the air valve closed. Application of the brakes is effected by opening (or weakening) the electric circuit, which can be done at any pair of rail joints (opposite each other) by the use of the ordinary insulation.

The latest tests have been made on locomotive No. 804, which runs between Ludlow, Ky., and Danville, on trains 11 and 12. At a half dozen distant signals, track joints have been arranged to cause the operation of the engine mechanism; the roadside apparatus being set against the train whenever tests are to be made.

The insulation between the engine and its truck consists of vulcanized fiber, ⅛ in. thick. The piece of fiber is made cup shape and is fitted into the lower center casting. Above this is a steel cup of the same shape, and the edges of the fiber project 3 in. above the metal rim, this to prevent foreign metallic substances from making a short circuit. The centerpin is surrounded for its whole length by a hard fiber thimble.

The circuits are illustrated in Fig. 2. The battery, ó, ener-

gizes four parallel circuits, *A, B, C,* and *D*. Circuit *A*, energizing coil 7, is called the control circuit. From the positive side of the battery 6+ it runs through wire *A*+ to the front truck of the locomotive, thence to the rails of the track and to the driving wheels and by wire *A*3, as shown by the broken line, to coil 7.

Circuit *B* energizing coil 8, is carried through the normally closed push button *B*+. This circuit also goes around the push button by wires *C*3 and *C*4 to a circuit breaker, 92, controlled by air pressure. To restore the apparatus after the brakes have been applied, the engineman must open the circuit through coil 8 by depressing the push button; and the circuit breaker, 92, prevents the operation of the button from having any effect until after the air has actually been exhausted.

Circuit *C*, called the working circuit, passes through contacts

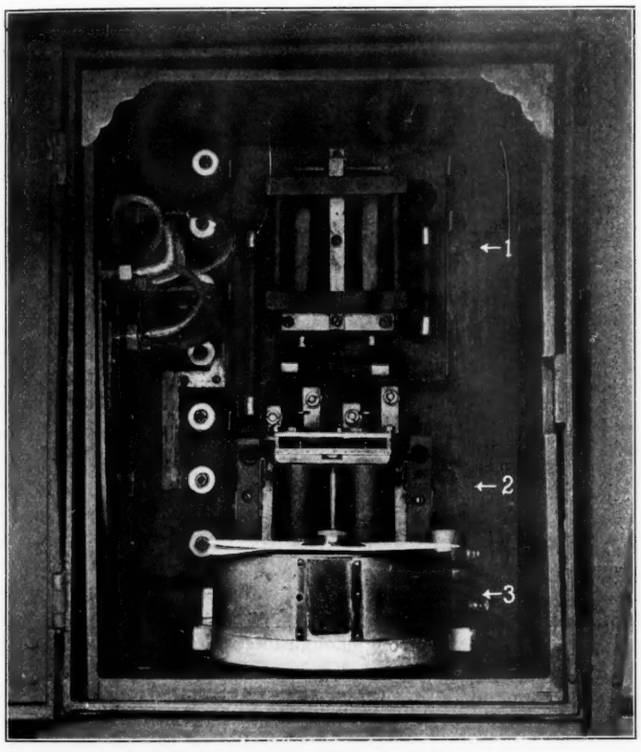



**Fig. 1—Buell Cab Signal and Automatic Stop**
Note—1, Governing Magnets; 2, Valve-Holding Magnet; 3, Recorder.

9 and 10 of armature 12 and controls the valve holding magnet *VHM*.

Circuit *D* energizes four electric lamps, *L*, arranged in parallel.

As shown in the illustration, the engine is entering the block section which controls track relay *TR*. This relay is energized by the track battery at the far end of the section, so long as the section is clear; and its armature, by closing the contact *k*, prevents the operation of the cab signal and train stop by making a path for the current from the front wheels to the driving wheels past the insulated joints *j* and *j'*. If the section which the train is entering is occupied by a preceding train, track relay *TR* will be de-energized, contact *k* will be opened and the passage of the locomotive over the insulated joint in the track will interrupt the current in circuit *A*. For a distant indication relay *TR* would be so connected as to be controlled by the condition of the track circuit next farther in advance.

In the experimental installations the track relay is so wound that its response to the passage of an engine is slow; so that if the road ahead is clear, the engine will not have caused the opening of point *k* before the leading driving wheels have passed the insulted joints.

Each of the two coils, 7 and 8, is wound to the same resistance. When by reason of encountering the insulated joints the current through coil 7 is weakened, that through coil 8 is strengthened by means of the bridge wire *a b*; this causes 8 to attract the armature 12, breaking contacts 9, 10, which opens circuit *C* and de-energizes the valve-holding magnet, which causes the application of the brakes. By the opening of contacts 9, 10, a stronger current is made to flow through circuit *D*, causing the lamps to burn with increased intensity. The resistance of *R'* and of the magnet *VHM* and the lamps is so adjusted that normally the lamps burn at low incandescence. This gives constant

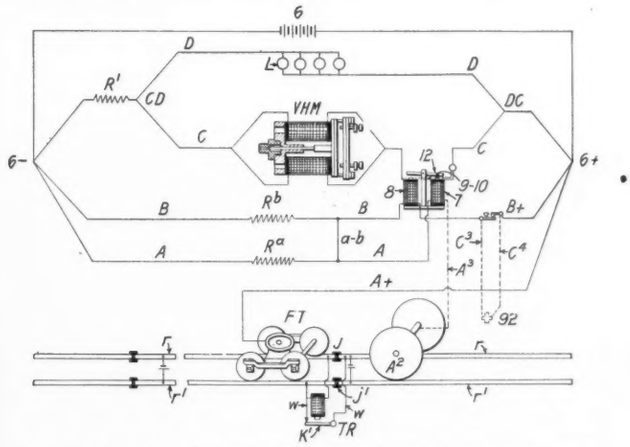



**Fig. 2—Circuits of Buell's Cab Signal and Automatic Stop**

evidence of the integrity of the circuit. The release of air caused by the operation of *VHM* continues until the engineman opens the circuit at the push button, which de-energizes coil 8 and allows armature 12 to again be attracted by coil 7.

The release of air, applying the brakes, also actuates the recorder which makes a punch mark in a paper disk every time the brakes are applied. The disk is revolved by clockwork, so as to make a record of the time and also, if adjusted for the purpose, a record of the location.

It will be seen that the engine carries only two instruments, the governing magnet, 7, 8, and the valve-holding magnet.

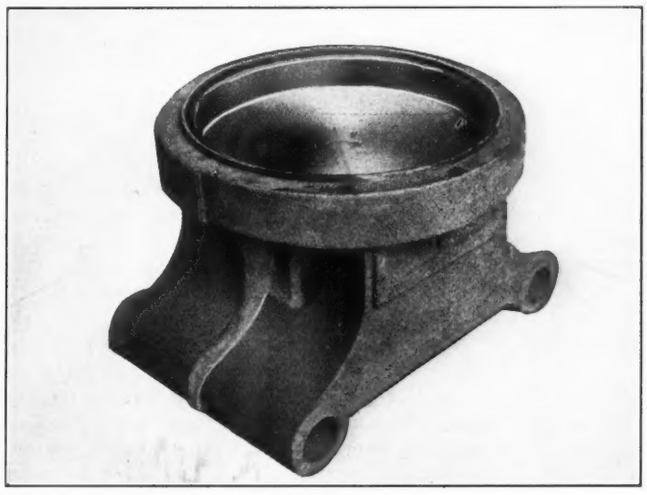


**Fig.3—Insulated Center Plate, Front Truck of Locomotive**

These are mounted in a box 18 in. x 24 in. x 12 in. (Fig. 1), fixed beneath the cab on the engineman's side.

This apparatus is made by the Buell Signal & Train Control Company, Washington, D. C. It is a development of several years of experiments, and the effects of jar and vibration are said to have been wholly overcome. The cost of equipping a locomotive is given as $200. Where automatic block signals are in service the roadside equipment will cost but $10 a block.

## FEDERAL LOCOMOTIVE INSPECTION

At the conference between the representatives of the railroads and of the Federal Bureau of Locomotive Boiler Inspection, held in Washington the latter part of last August, the rules for locomotive and tender inspection submitted by the railroads and those submitted by the bureau were discussed, and an agreement was reached on all rules except Rules 18, 29, and 31, regarding automatic bell ringers and locomotive headlights, as noted in the *Railway Age Gazette* of September 3, page 426. As a substitute for these rules the committee representing the railroads submitted the following:

"*Bells and Bell Ringers.*—Each locomotive shall be provided with a bell so arranged and equipped that it may be operated from the engineer's cab."

"*Locomotive Headlight.*—In order that the engineman shall have sufficient illumination ahead of the engine to allow him to readily perform his duties while operating in and out of passenger terminals and industrial sidings, while switching in yard, and to readily locate whistle posts, yard limit and crossing signs and such other land marks en route, a headlight on a road locomotive shall not at any time during service have apparent beam candlepower less than the following; the readings to be made in a vertcal plane 25 ft. ahead of the focal center and referred to points at various stations in the reference plane:

READINGS AT CENTER OF REFERENCE PLANE

| Reading point ahead of focal center | Apparent beam candlepower |
|---|---|
| 500 ft. | Not less than 450 cp. |
| 600 ft. | Not less than 490 cp. |
| 700 ft. | Not less than 500 cp. |
| 800 ft. | Not less than 500 cp. |
| 900 ft. | Not less than 500 cp. |
| 1,000 ft. | Not less than 500 cp. |

AVERAGE SIDE READINGS (AVERAGE OF READINGS TAKEN AT EACH STATION 20 FT. EACH SIDE OF THE CENTER)

| Reading points ahead of focal center | Apparent beam candlepower |
|---|---|
| 50 ft. | Not less than 30 cp. |
| 100 ft. | Not less than 110 cp. |
| 200 ft. | Not less than 225 cp. |
| 300 ft. | Not less than 315 cp. |
| 400 ft. | Not less than 350 cp. |

"The above readings are to be considered independent of the location of the headlight, the source and intensity of light, the design of the reflector, etc."

The locomotive headlight rule was based on the report of the committee on Locomotive Headlights of the Master Mechanics' Association, which was abstracted in the *Daily Railway Age Gazette* of June 17, 1914, page 1457.

A hearing was held before the Interstate Commerce Commission on September 28 and 29, concerning the contested rules and in the latter part of October the Special Committee on Relations of Railway Operation to Legislation representing the railroads, filed with the Commission a brief of the arguments against these three contested rules. The brief contained an abstract of the testimony presented at the above-mentioned hearing, bringing out the important features tending to show the inadequacy of these rules. The argument submitted in the brief consists of the following three points: "First, the rule for the inspection of locomotive headlights, filed by the carriers and recommended by the Master Mechanics' Association, is a definite, safe and practical rule, and scientifically adequate for all the purposes and uses of a locomotive headlight. Second, the proposed rule is unsafe and improper. Third, the Boiler Inspection Act of 1911, as amended by the Act of March 4, 1915, imposed no duty and confers no authority upon the Interstate Commerce Commission, other than to approve or to modify rules for the inspection of locomotives and their appurtenances."

Under the first point it is contended by the railways that the conclusions of the committee of the Master Mechanics' Association, which experimented with locomotive headlights, were based on the practical results of exhaustive tests and that the recommendations were a scientific statement of the conclusions. It was believed practicable to leave the headlight matter to the judgment of the officers of the different roads, but if a general rule is to be adopted it should, it was contended, be such as will meet the conditions of the roads which have completely signaled their lines and which have a dense traffic and multiple tracks, so that the danger claimed to be inherent in the operation of a high-power headlight upon railroads operating under such conditions will not be present.

The greatest objection to the rule proposed by the Bureau of Locomotive Boiler Inspection, it was argued, is that it is indefinite and incapable of being reduced to a specification from which headlights could be made or reproduced. This rule, as it is presented, uses the terms "normal vision," "normal weather conditions." It was pointed out that there is practically no definition of "normal vision" and that "normal weather conditions" would be a variable quantity in different sections of the country, as well as at different altitudes in the same section of the country.

Testimony was presented by Mr. Crittenden, of the Bureau of Standards, to the effect that under the Bureau's rule, in case of a dispute as to whether or not a given headlight complies with the rule, it would be impossible for anybody to settle that dispute, because the rule is not sufficiently definite and does not provide a measurement possible to absolutely determine whether or not a headlight conforms to the rule. When asked in what respect this rule is indefinite, he stated: "It provides that a person with normal vision shall see an object the size of a man at a distance of 1,000 ft. I believe no person could undertake to determine that with certainty, because the distance at which you can see an object depends not merely upon whether it is dark or not, but upon the background against which you see it and upon the general amount of light and the surroundings, and upon the condition of the atmosphere. Moreover, what you mean by normal vision is not definitely established. That is, if we go to an oculist, he tells us we are of normal vision if we can see type of a certain size at a certain distance, but he makes no test whatever of the amount of light which we need in order to see that print. . . . I would naturally expect, therefore, aside from the other uncertain conditions, that different observers would be presumably able to see an object at different distances with the same light, and therefore without more definite specifications I would not want to attempt to say that any particular light was or was not strong enough to enable one to see an object at a certain distance."

The testimony also showed that there is no such thing as normal weather conditions, unless the term is strictly applied to very narrow limits of territory and to particular seasons of the year. The brief goes on to show the results of tests on various roads, and enumerates a number of accidents claimed to have resulted from the use of high-power headlights.

The third point brought out in the argument of the special committee was presented for the purpose of showing that nowhere in the Act of 1911 or in the Act of 1915 is there a requirement or even a permission, direct or indirect, to the Bureau of Locomotive Boiler Inspection, or to any other body or person, to require a particular kind of construction, or a particular type of equipment, the requirements being fully and solely as to inspection. This is intended to show that the Bureau of Locomotive Boiler Inspection has no authority to specify what should be placed on the locomotive, this applying to the automatic bell ringers as well as the locomotive headlights.

The Bureau of Locomotive Boiler Inspection has 15 days in which to file a brief giving its side of argument, and then the railroads will have 10 days more to file a return brief before the matter will be decided by the Interstate Commerce Commission.

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Russian Railways and Private Enterprise.—The Russian Government is examining the project of a new railway to connect with ports on the Black and Azoff Seas. It is proposed to let the construction of this new line to "private enterprise."

The Bagdad Railway.—The portion of the Bagdad Railway, 24 miles in length, from Tevem to Rasul, has been inspected by a technical committee and was open for traffic on August 23.

# EDUCATION FOR RAILWAY WORK*

By Samuel O. Dunn

Education for railway and other business work is now passing through the stage of doubt, discussion and development that education for professional work passed through a half century or more ago. The courses of study and methods of instruction are as yet incomplete and imperfect, and there are many "practical" men who are still skeptical whether a man will stand a better chance of success in business if he takes a course in business administration or if he omits it and gets into business younger. A recent event has significance as indicating that many of our most prominent business leaders are convinced that college training for railway work is desirable. I refer to the foundation of the James J. Hill Professorship of Transportation at Harvard University. The contributors to the endowment of this chair included many of the leading financiers and railway managers of the country. Mr. Hill would not have permitted a chair of transportation to be established in his name, and these other eminent men would not have endowed it, if they had not believed in college training for railway work. Therefore, if any of the young men and women who have enrolled in the transportation courses at Northwestern have doubts as to the wisdom of their action aroused by the comments of "practical" men they can comfort themselves with the reflection that "practical" men of real eminence have signified their belief in college courses in the most unmistakable manner.

Pursuing studies in college is, of course, not the only way in which one can acquire the broad knowledge and the understanding of fundamental principles which are the best fruits of a liberal education. They may be acquired by study without any guidance except one's own. But one thing may be said on this subject without hesitation or reservation. This is, that broad knowledge and an understanding of the fundamental principles of one's business or profession are essential to great success; and that no one can get these without becoming and throughout his life remaining a good student.

The question arises, then, in what way is one most likely to become a good student? I myself am not a college graduate. I never went to college at all. I have, however, been a pretty diligent student all my life. Possibly, therefore, you might expect from me the opinion that a man is as likely to become a good student, and may become as good a student, by his own unaided and unguided efforts as under the stimulus and direction received in college. I hold no such view. You had as well expect a man to learn to play golf as well without instruction as with it, or to become as accomplished a violinist without instruction as with it, as to expect a man to become as good a student without a college training as with it. There are men who play golf well, there are even men who perform creditably on the violin, who never had any instruction. But most of the good golf players and good violinists have taken lessons; and the better they play the more confidently may it be assumed that at some stage of their careers they had instruction from competent teachers.

Likewise, most good students are college men; and the better students they are the safer you are in assuming that they are college men. There are a few men of such energy and natural ability that they will achieve a moderate, or perhaps even a great success in their chosen line of work without a college training, without other advantages, and even in spite of great disadvantages. But college training, whether along business or professional lines, would not make these men of power less powerful; and to men of less natural parts it is almost essential to enable them to make the most of themselves.

So I say to the young man who expects to enter railway work, and to the man who already is in railway work and wants to advance, devote all the time and energy you can to the acquisition of a broad knowledge and an understanding of the fundamental principles of the railway business, because with these you can hope to achieve a satisfactory success and without them you cannot. Do your studying in college if you can. If you can't go to college, at least study systematically and constantly the literature of your business—the books, the magazine articles and the periodicals devoted to it—and all the literature which even indirectly bears upon it.

Some railway men are likely to raise the question whether the colleges really do impart knowledge and help to an understanding of fundamental principles in their courses on transportation. It is a regrettable fact that their skepticism is not entirely causeless. There is much teaching regarding railway matters in our universities which is not satisfactory. No one has any right to criticise a professor of economics or of transportation or of any other subject for drawing his own conclusions from well authenticated facts, no matter how irrational the conclusions may seem. But the public, the railways, and most of all, the students in our schools have a right to demand that those who assume the responsibility of giving instruction concerning railway matters shall make sure they know the facts about them before they try to teach others. Unfortunately, there are some professors in our universities who seem more anxious to impress their own social and economic theories on their students than to impart to them real knowledge, and who do not take the trouble to ascertain the data on which their social and economic theories ought to be grounded. Unfortunately, some of them know a great deal more about so-called "social justice" than they do about transportation. I have read books and articles and heard addresses on railway subjects by professors in our universities engaged in giving courses in railway economics in which there were advanced pretentious theories, and, at the same time, disclosed a startling ignorance concerning the real history, organization, operation, management, wages, rates and financial results of our railways. Too many of our professors are content to study railway matters mainly through the reports of investigating committees, commissions and courts. These reports deal chiefly with what Professor Ripley of Harvard has aptly called the pathology of the business, and a man had as well try to learn the state of health of the human race by studying the sick brought into a hospital, or to get information concerning the domestic life of a people by attending the proceedings of its divorce courts, as to try to get a broad and correct knowledge of the railway business of this country by studying the reports of investigating committees and railroad commissions. The point of view of some teachers was illustrated recently when a professor of economics in one of our large universities, in an address before an important economic society, asked why it is that every time a railway is investigated there is something rotten found. The obvious answer is that only railways which have given strong reason for the suspicion that there is something rotten in them are investigated. Before college courses in transportation and railway economics generally will command the respect and confidence it is desirable they should, the teaching of these studies must be raised to a higher plane, and this will not be accomplished until the teaching is done by men who devote themselves to the acquisition of a thorough and intimate knowledge of the actual facts regarding the railway business before they begin to formulate theories about it. In order that a professor or an editor or anybody else outside the business may acquire this thorough and intimate knowledge of it he must not only master the literature pertaining to it, but he must also get and keep in close touch with the industry itself and with the men who are managing it as well as with those who are regulating it. One of the main reasons for the shortcomings of the teaching regarding railway matters in this country is that many of the professors do not get and keep in this close touch with the transportation industry.

It is not my purpose, however, to imply that all the teaching of railway matters in our universities is open to criticism. There are numerous professors who have devoted years to the industrious, intelligent and painstaking study of railway operating,

* An address at the annual opening of the Commerce School of Northwestern University, Chicago, September 24.

traffic and financial matters, and who, if their teaching is as good as their writing, are competent to serve as guides in investigating and reasoning about these matters.

I am frequently asked by railway men to furnish a list of books on railway subjects which it may be advantageous for them to read or that will be suitable to place in reading rooms or libraries. I have prepared a list of 39 books dealing with railway operation, organization, traffic, finance, etc., which I usually furnish in response to such requests; and I found in looking over the list this morning that 19 of the books in it were written by men who at the time they were written were teaching or lecturing in universities, while two others were written by men who were at the time graduate students in transportation. The books in this list are all accepted as authoritative in their respective fields, and the fact that a clear majority of them was produced in our universities is a high tribute to the class of work in this field which is being done in a number of our schools.

But there are some railway men who regard themselves as highly "practical" who question whether college courses in transportation can be made of much value even when the teachers are learned and able and the pupils are industrious and studious.

There are two arguments which can be made in support of the value of the scientific investigation and study of transportation which seem to be conclusive. One is based on theoretical grounds. The other is based on the careers of railway men themselves.

What, essentially, is it that we learn when we intelligently study the subject of transportation in statistics, books, lectures and so on? First, we learn what has been the experience of those who have actually done practical work in this field. Now, the experience of others has most valuable lessons for us. It is true that one's own experience is, in a sense and an important sense, his best teacher. But, after all, any one person's experience is necessarily very limited, and therefore he who never learns except by his own experience never learns much. Secondly, by the study of transportation subjects we learn how those who have given time and thought to these matters have reasoned about them, the conclusions which they have reached, and the fundamental principles which they have established. Now, any man, in order to do good work, must act on rational grounds. And does it not go without saying that one is more likely to act on rational grounds if he knows how others have reasoned when they have been confronted with the same problems that he meets, and what conclusions they have reached and what principles they have established, then if he is ignorant of these things?

The experience of railway men themselves on which I base the argument for the scientific investigation and study of transportation matters as an essential to real success in railway service is the experience of those who have made the greatest successes in that service. A large majority of the higher officers of our railways have not had college educations and have risen from the lowest ranks of employees. This might be superficially assumed to indicate that college training and "book learning" are hindrances rather than helps to advancement in this field. No assumption could be more incorrect. The main reason why there is only a minority of college men among the higher officers of our railways is that the number of college men who enter any business is small compared with the total number who enter it; that this is as true of the railway as of any other business, and that therefore the number of college men who rise to the top is bound to be small compared with the total number who thus rise. The number of college men holding high positions on our railways is, however, very large in proportion to the number of college men who enter the business. The railways of the United States in 1913 had 1,815,239 employees. Of these, 4,400 were classified by the Interstate Commerce Commission as general officers; and of the general officers no less than 1,076, or 25 per cent, are shown by the Biographical Directory of Railway Officials to have received a college training. These were divided as follows:

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|---|---|
| Chairmen of executive boards and presidents | 67 |
| Vice-presidents | 85 |
| General managers, general superintendents and division superintendents | 160 |
| General solicitors, general counsel, general attorneys and commerce counsel | 113 |
| Traffic managers, general and assistant general freight agents | 65 |
| Secretaries, treasurers, auditors or controllers | 76 |
| Mechanical superintendents, mechanical and electrical engineers | 91 |
| Chief engineers, consulting engineers and engineers of roadway or maintenance | 265 |
| Miscellaneous, including purchasing agents, general passenger agents, general baggage agents, etc. | 154 |

Considering how small a part of those who enter railway service are college men, the fact that from this small part have been recruited one-fourth of all the general officers is as high a tribute as could be paid to the value of a college training. A large majority of these men took engineering courses in which they applied themselves directly to the study of railway civil and mechanical engineering, these being the first specifically railway subjects taught. Now that our educational institutions are giving an increasing amount of attention to railway work in all of its branches, the proportion of officers recruited from among college-trained men may be expected to increase.

The value in railway work of a broad education is further illustrated by the fact that a large majority of the higher officers who are not college men are students in the best sense of that word. I have had opportunity during a rather active life to come in contact with men in many walks of life, and I venture the opinion that there is not in this country another class of business or professional men which excels the higher officers of our railways as a body, in that many-sided intelligence which can be acquired only by a combination of wide reading and study and intense practical experience. And those higher officers of the railways who have not had college training owe almost, if not quite, as much of their success to the broad knowledge and the understanding of fundamental principles which they have derived from study as do those who are college men. A striking illustration is afforded by the head of one of our largest railway systems—a man whose name is recognized all over the world as that of an operating executive of long practical experience, of boundless energy and of great ability. This man, who began active railway work in one of the lowest ranks of the service, states that he reached the turning point in his career when he stumbled on a copy of Wellington's book on "Economics of Railroad Location." From that time he became a student railway man as well as a practical one, and he has ever since been as intense and energetic in his study of railway literature as in the performance of his daily work. He knows the literature of his business thoroughly, and you seldom meet him that he does not start a discussion of some new book or article on transportation he has just read. He is, besides, a good amateur connoisseur in painting, he plays the violin and he has very recently begun the study of French! And that man, among other things, has spent $110,000,000 in improvements on his railway within the last five years. Of such material are our great railway managers made.

Even though broad knowledge and an understanding of fundamental principles would have been of less value in the railway business in the past than they have been, they would be indispensable to the highest success in this business in the future. In the past there was nobody that it was especially important to the railway manager that he should please but the owners of the property, and it was not especially important that his subordinates should please anybody but him. Now the management must not only run the property successfully from the stockholders' point of view, but it must justify to the public and to regulating bodies representing the public everything that it does. act on sound principles. ~~If they must act on sound principles~~ But if people must be prepared to justify all they do, they must act on sound principles. If they must act on sound principles, they must know what principles are sound. But an understanding of sound principles and of the conditions and reasons on

which they are based is never attained except by hard study and careful thinking. Therefore, the changes which have occurred within recent years in the conditions under which railways are managed have made a liberal education more necessary to great success in the railway business than ever before. I do not mean that it has made a college education more necessary, but that it has made a liberal education more necessary, whether acquired in college or out of college. The increasing demands and power of labor organizations, the large advances in wages, the insistence of the public on better service, the regulation of railway rates and all phases of operation—these and other conditions are rendering essential greater engineering skill, more ability in handling men, more knowledge of economics, greater aptness for diplomacy, more knowledge of and a broader outlook on public affairs, than were formerly required. The railway having become fully recognized as a quasi-public concern, its officers are becoming recognized as quasi-public officers. Therefore, they need the best qualities of the business man united to the best qualities of the statesman.

Theirs is a high calling. It is also a very difficult calling. Whether private ownership and management of railways will be continued in this country will depend largely on how the managers of the railways measure up to the demands of their calling; and how they will measure up to them will depend largely on whether the men now in the business and those who enter in future give as much attention in proportion to the theoretical, the scientific and the ethical side of their business as to its practical side.

## RAILWAY DEVELOPMENT ASSOCIATION

The semi-annual meeting of the Railway Development Association was held at the Hotel McAlpin, New York, this week, beginning Tuesday, November 9, John C. Emig (C., C., C. & St. L.), presiding. The association was welcomed to the city by Chamberlain Bruere for Mayor Mitchel.

The first paper presented was by John F. Fox, immigration agent of the Northern Pacific, on the subject of "Immigration Field Work." Mr. Fox said that settlers who become good, thrifty, prosperous and productive citizens and the expanding industrial enterprises they create and foster are the two chief factors upon which the future success and well-being of a railway are founded. Immigrants may be secured by advertising, by personal solicitation, or by exhibits at country fairs or other places, but every effort should be made to secure only that sort of immigration which will result in material benefit to the settler as well as to the railroad.

In the discussion of Mr. Fox's paper considerable attention was paid to the land locator or real estate shark and to the frauds frequently worked on settlers by unscrupulous land agents. Several speakers believed that the matter should be more carefully looked after by the national or state governments, some proposing that these men be licensed or bonded. The matter was left with a special committee which proposed a resolution adopted by the convention urging Congress to license such locators as a protection to homeseekers.

### ADDRESS BY GEORGE A. POST

George A. Post, president of the Railway Business Association, was expected to speak on the subject of "General Railroad Business." Finding that title slightly too broad, however, he spoke on "Corkscrews and Other Openers." An abstract of Mr. Post's address follows:

The men who constitute this association are "openers" of a high degree of efficiency. You are close students of the opportunities afforded by your respective lines. You are more fortunate than are some other departments of railway operation, in that you are constantly brought in contact with the public, and are made aware of their necessities and their diverse viewpoints. You know that your railroads must have ever increasing volume of traffic; you know that this means that productivity of everything that requires transportation must be augmented by every available resource that human ingenuity and persistence can devise. You must make plans, and strive to execute them, that will attract favorable consideration of what you have to offer. You must dream dreams, and seek to have them materialize into profitable realities.

It is for you to match your wits against those of the parties with whom you deal, and see to it that they get what they actually need for their purposes, which will at the same time be profitable to the railway. They must not get away with anything they are not entitled to, and which, if they did, would be injurious to your company. You gentlemen know that nothing can happen to your railway that could be more serious than for you to overreach and put some scheme across that would leave a sore feeling in the hearts of those with whom you deal. A grievance, however small, that is left to rankle, grows and spreads like a prairie fire, and in the end the railway gets by far the worst of it.

Whatever may be the faults of our regulatory system, now in vogue in our states and the nation—and there are many serious ones—it cannot be denied that much good for the public and the railways has been evolved thereby. That there has come about during the past few years a better feeling toward the railroads than existed at one time, there can be no doubt. A reason for this is that the public now knows a great deal about the problems that harass the railroads, and the difficulties under which they are operating. They have had their eyes opened. Railway officers, once reticent from habit, or unaccustomed to public speaking, have found that reticence will not satisfy the public demand for information, and that hesitant speech conveys the idea of ignorance, or unwillingness to answer, when they are haled before public bodies for interrogation as to railway affairs. In other words, they have had to "open up."

I have been an eye-witness of many ordeals through which railway officials have passed during the past seven years. I have seen men of high station thoroughly discomfitted by their lack of equipment for forensic fray. It was not because they were not able administrators, fitted by experience and wisdom to preside over the destinies of invested capital, but because they could not concisely, incisively and persuasively tell the things they knew. But they have been apt pupils, and to-day there is a large number who, with easy pose and fluent tongue, win applause as they appear upon the rostrum, and inspire confidence at the bar of inquiry.

It is largely because of this attitude of the railways toward the public, and their acquired ability to make cogent statements, whereby a better comprehension of railway facts is vouchsafed, that the attitude of the public has become so much more favorable toward the railways. Instead of turning deaf ears to railway officials when they tell of their situation and financial perils, thoughtful people now listen and take heed. After all, there are but few folks who bait the railways as a business, and these make a living by doing so. The more people know about the railways, the more meagre will become the menu of the professional baiter. The general public realize that anything that really and seriously cripples our railroads, hurts the public as much as, if not more than, the railroads.

As the incalculable importance of our railroads is opened up to the view of the public, the greater is the public appreciation of the wisdom of fair treatment of them by the public. Some things fortunately have been opened up regarding past railway manipulations that have been discreditable, and that have filled the air with the stench of iniquity. Their exposure has been a splendid job too. They cannot and must not ever occur again. Secrets give birth to suspicions. This is a day for everybody to get out into the open. Things done in the open are quite sure to be circumspect. Railroad operations are now open and above board. The public knows, or it may know if it so desires.

"General Railroad Business" is, I recall, what your program says I am to talk about. Well, the general business of railroads is to act as "openers." Do they do it? Are there vast areas

of land awaiting the tiller? They are opened to settlement by a railroad. Would we open the mountains and make them disgorge their buried treasures of gold, silver, copper, iron or coal? Bring us a railroad, is the demand. Would you open a factory, and hope to be prosperous, without a railroad? How do we open up markets? With railroads, of course! Do cities wax great and are they peopled by busy artisans, whose fabrications reach to all parts of the globe? They have been opened to nation-wide and world-wide commerce by railroads. When railroad business is *general,* things are wide-open. When it isn't, they are closed. When we think of business in general, we inquire: What are the railroads doing?

### INTENSIVE AGRICULTURE

W. H. Olin, agricultural commissioner of the Denver & Rio Grande, gave a brief address on intensive agriculture. Mr. Olin's road does a large business in potatoes, the quantity shipped yearly from that territory to distant points amounting to 7,500 carloads. He gave an interesting sketch of his investigations and studies to learn the best kinds of potatoes to be raised on different soils and the best kinds to satisfy different classes of buyers. Furnishing officers of other roads with information about traffic conditions on his line, he received in return useful lists of jobbers on those other roads to whom he could recommend the shipment of potatoes.

In the discussion on this address, J. C. Clair (Ill. Cent.), told of the activities of his department in promoting the sale of Southern fruit and vegetables in northern cities. Information as to marketing was circulated among the farmers in the South by means of photographs. Truck farmers in Tennessee have been induced to form an organization for the dissemination of information, and the road proposes to send men there to give specific instruction as to the best methods of packing for northern markets. In Louisiana, whence the Illinois Central has a large movement of strawberries, the road has employed the best talent to go among the farmers and show them how to get rid of a serious pest that reduced the strawberry crop last year. The information which was developed on this subject has been given to the Agricultural Department at Washington. This year the road has taken out of Tangipahoa parish, Louisiana, about 1,250 cars of strawberries and the American Express Company about the same number.

### EXPORT TRAFFIC

This was the subject of a paper by W. S. Kies, vice-president of the National City Bank, New York City. Merchants and manufacturers all over the country still need much advice and instruction concerning the best methods of learning the wants and the wishes of buyers in South America and other comparatively new markets, and Mr. Kies pointed out to the railroad men how they, both in the public interest and in their own, could disseminate this information fully as well as any other class. Our foodstuff exports have become secondary to those of manufactured products, and the present opportunity to extend on a permanent basis our trade in factory products in the markets which our European rivals are temporarily forced to neglect should be more properly cultivated.

The sooner the American people come to recognize the fact that the permanent extension of our American trade in manufactured goods is absolutely essential to our continued domestic prosperity and rightful position in international trade, Mr. Kies declared, the more rapidly and efficiently shall we be able to develop foreign markets. Our national life is becoming more and more dependent on our manufacturing industries and new markets are necessary through which to maintain a capacity output on the most economical basis.

### HIGHEST FUNCTION OF THE INDUSTRIAL DEPARTMENT

W. W. Wood (B. & O.) delivered a carefully prepared address on "What Makes the Department Permanent." Discussing the constant changes in railroad customs and ideals, he gave interesting details of the early history of the Baltimore & Ohio, which had no vice-president until 1866 and no officer with the title of general manager until 1884. Railroad managers of the earlier days made mistakes, of course, and a common fault was arrogance toward the public. This culminated in what has been called the "public-be-damned spirit"; and about that time arose the industrial department. This department, more than any other, is truly a servant of the public. Of all departments, except this, it may be said that at least a part of its functions are not public; but there should be at least one railroad department that is always wide open to the public; and the industrial department is that one.

The railroad officer dealing with the public should give the real reasons for his decisions. Telling people simply that you do not see your way clear to do so and so does not go in these days. It is good to compel yourself to formulate reasons that will be acceptable; possibly in the formulation you will see more clearly, will reverse yourself, and give your customer a more favorable answer.

We are in many cases the mediator between the traffic or the operating department and a shipping. This is an important function. The speaker cited cases where it took 45 days to get approval of a new side track. Half that time may defeat the plans of a prospective industry. It is our duty to prevent such unreasonable slowness.

Every industrial agent should keep himself very fully and minutely informed as to the character of his freight territory; all of it. It is his business to gather and record this information better than any one else can do it. And he must remember that his studies ought to be largely for the future. If a certain district, large or small, finds its source of raw materials has failed or is becoming more costly, why can you not jump in and see that an economical substitute is furnished from the mines or forests on your line? To keep fully abreast of the times is our duty not only to ourselves and our employers, but also to the public. If we do not keep up to date we are liable to find the government stepping in and supplanting the carriers. If the railroads do not do their very best, we shall wake up some morning and find ourselves reporting to the Department of Commerce!

Following this paper, C. C. Dana (A. T. & S. F.) spoke of on "Eliminating Competition by Locating Industries on Joint Tracks." He emphasized the necessity of complete frankness with the public. Excessive fear of competitors, or excessive zeal in circumventing them, will fail. It is quite possible to induce a city to encourage a new industry which cannot possibly succeed in that location; but to do so is a grave mistake. Railroads ought to combine and deal with cities jointly. Acting in this way, and having made a thorough industrial survey of a city, it is to the interest of the railroads to act together. To eliminate unnecessary strife the railroads, going to a city which desires new industries, should ask to have appointed a citizens' committee to select locations for industries. This frankness and impartiality will make friends; and no road is harmed, for no one can get all the traffic of a given factory, anyway.

Mr. Wood's and Mr. Dana's papers were discussed together. J. C. Emig (C. C. C. & St. L.) said that it was the policy of his company to encourage joint locations on the tracks of two or more roads.

D. E. King (Mo. Pac.) spoke of the duty of the industrial commissioner to mold public opinion. The industrial commissioner often is better able to do this than any other department of the railway; and a commissioner, doing this well, will find the other departments coming to him for aid in matters of this kind. It is practicable even to shape the views of people on political subjects. Where two or three roads enter the same city, the railroad men, by acting in unison, disarm prejudice and can enlighten the people on transportation matters to mutual profit.

F. A. Spink, traffic manager of the Belt Railway of Chicago, agreed with Mr. Dana that the day of exclusive terminal privileges is fast passing. In most cities reciprocal switching arrangements are now in effect. In Chicago a manufacturer finds little or no advantage in an exclusive location, neither does the road

enjoying that exclusive arrangement. Frankness with competing roads does away with much friction. If a prospective new industry is worth going after everybody knows it. The industrial commissioner needs constantly to work for efficiency within the railroad organization. To be six weeks in answering a request from a prospective new customer when the matter might be settled in six days—or perhaps six hours—by going direct to the officer who has authority, is absurd and wasteful. It is the industrial commissioner's duty to get such obstacles removed.

J. C. Clair (I. C.).—At competitive points the railroads should not only act in unison, they should take the initiative in securing action by municipal officers looking to economical construction and operation. The railroads may well do what they can to promote the establishment of a manufacturing district in growing cities. Interurban roads should be encouraged; by the facilities which they give to the people they will promote travel on steam railroads. The wide-awake industrial commissioner does not confine himself to industries situated on his own line. You may now and then do a fine thing for your own road by cultivating business in a city many miles away from the line.

R. W. Hockaday (M. K. & T.) agreeing with previous speakers in regard to co-operation among rival railroads and also in the matter of getting growing towns to set aside a manufacturing district, gave examples of what he had done in this respect in Oklahoma. His road is at all times ready to take its chances with competitors at any joint location.

### CO-OPERATION WITH COMMERCIAL BODIES

This was the subject of an address by Richard C. O'Keefe, general secretary of the Buffalo Chamber of Commerce. Mr. O'Keefe outlined the early history of railroads in America, showing that co-operation between the public and the owners of the railroads was natural. The federal government, the individual states and cities by the hundreds encouraged the building of railroads and gave their money; and in every way showed that transportation was a vital part of the life and progress of any community. The pioneer railroad builders did not get their money in Wall street, they got it from men actively interested in local commercial enterprises. The federal government aided railroads to a considerable extent, and under slightly different circumstances would, no doubt, have gone much farther. Indeed, freedom from regulation was, in the early railroad era, a form of aid. The speaker enumerated a dozen states which gave aid to railroads. The state of New York aided them to the extent of $8,300,000, of which sum only $750,000 was ever paid back. The city of Buffalo took a substantial interest in the Buffalo, New York & Philadelphia and the Buffalo & Jamestown.

Mr. O'Keefe finds that the railroads do not seem to desire to co-operate with commercial bodies. Why should not the carriers co-operate with business men in the cities in the same way that they do with the farmers? Commercial men are annoyed by the fact that railroad representatives lack the authority to settle matters until after tedious correspondence with headquarters. The merchants are the real friends of the railroads, as witness the recent action of the Merchants' Association of New York City in making a thorough investigation of the question of mail pay and publishing a report favorable to the railroads.

### AGRICULTURE

This was the title of an extemporaneous talk by Professor Alva Agee, director of the New Jersey State College of Agriculture, New Brunswick, N. J. Professor Agee gave an illuminating mass of facts concerning what is needed to improve agriculture and the interest which the railroads have in this subject. Railroads could be named, he said, the stock of which would increase 50 per cent in value if all of the land tributary to their lines were brought up to its full productivity. The railroads and the agricultural colleges are natural friends, as the colleges were created for the very purpose of making the country more fruitful.

Do not aim solely at the production of heavy and bulky freight. Diversity is what makes the people of a given territory prosperous, and it is to your advantage to encourage such agriculture as is profitable to the people, whether it does or does not make heavy tonnage directly.

Railroads can well afford to carry lime for the farmers at cost. Nine-tenths of all the land between the Mississippi river and the Atlantic ocean could be made more fertile by the addition of lime; at least a ton on every acre every four or five years. Carry this lime at cost and you will make yourselves rich thereby. The speaker congratulated the railroads on their agricultural demonstration trains. Moreover, the country railroad station is one of the best places in which to display charts and other instructive matter for the benefit of farmers. The problem of soil fertility is unbounded in its possibilities and every encouragement should be given to our research institutions which are enlightening the public on this matter.

### FRUIT GROWING

This was the subject of a talk by J. H. Hale, the well-known peach grower of Connecticut, who is also a member of the Public Utilities Commission of that state. Mr. Hale gave an interesting sketch of the progress of civilization from the time when fruit was cultivated primarily to get something to drink —cider or wine—down to the middle of the nineteenth century, when the fruit traffic began to have commercial importance. The consumption of fruit must continue to grow, as the people learn its virtues. Fruit is the only important food that is perfectly fit for use without the cooking, the killing and the machine work necessary with other substances. In 1885 there was no long-distance traffic in cantaloupes and none whatever in carload lots. Now, 25,000 cars of this fruit are moved yearly. In 1890 Mr. Hale, reporting for the census, predicted that in 1900 southern California would ship 10,000 cars of oranges and lemons and was called wildly extravagant; the event proved that his guess was only half large enough. Now, the movement is 45,000 cars yearly. Of all kinds of fruit he estimated that the railroad movement in this country is 200,000 cars annually, producing a revenue of fifty or sixty millions.

Do not overdo the promotion of fruit traffic. Georgia became prominent as a peach state 25 years ago; by 1905 it had 18,000,000 peach trees; then thousands of small farmers got the fever and there was much waste by poor management; and today the state has perhaps only 8,000,000 trees, but these are under intelligent care. The railroads—the Central of Georgia, the Southern, the Atlantic Coast Line—have given the peach growers excellent service. Mr. Hale, commending what Professor Agee had said about lime, told of how, by persistent efforts with the carriers and with the producers of lime, he had been able to get a large reduction on the former prohibitive price of $8 a ton for lime for his lands in Connecticut, and now was improving them rapidly by the use of this fertilizer.

The railroads could greatly expand the fruit business by promoting the shipment of carload lots to smaller places. Towns of from 5,000 to 12,000 inhabitants now go to larger cities when, with suitable encouragement, and a lower minimum carload weight, they would get fruit direct from the orchards and thus there would follow an increased consumption.

Wednesday afternoon was devoted to a steamboat trip around New York harbor.

### THE BANQUET

The toastmaster at the dinner on Wednesday evening was S. C. Mead, secretary of the Merchants' Association of New York, and the speakers were Howard Elliott, president of the New Haven; John W. Weeks, Senator from Massachusetts, and Ralph Peters, president of the Long Island.

Mr. Elliott confined his attention largely to the work of the association considering its activities from the three standpoints of immigration, agricultural development and the encouraging of a friendly feeling towards the railways on the part of the public. Mr. Elliott also made a strong plea in his address for a proper regard for the needs of the country's transportation system.

"The load upon the transportation business has been very

heavy, and railroad owners and managers have tried hard to carry it. They are in the position of trying to serve 100,000,000 people, to treat fairly nearly 2,000,000 employees, to respond to the conflicting rules, regulations and demands of 48 sovereign states and to pay close attention and obedience to the nation, acting through Congress and the Interstate Commerce Commission. Meantime, the country has been growing, and the result has been a diversion of the energy of the owners and managers into channels that were not productive for the country as a whole, and the railroads have not been able to do the best they could to prepare for an increasing volume of business. So, to-day the country is face to face with inadequate facilities, and there should be good temper and co-operation by all to do the work needed to bring the transportation plants up to the present demands and to have a safe margin for future demands."

Senator Weeks made a strong plea for private or corporate enterprise as against government enterprise, taking issue with those who sought to maintain that the people of the country did not want to curtail the activities of the government, but wanted rather to enlarge them. Politics, in his opinion, prevents the government either from conducting business wisely or from interfering wisely in the management of business by others. He then went on to point out wherein the government was not a good business agency and to show further wherein it also hindered private development. The nation, for example, is suffering from too much legislation. "If we had one-tenth of the legislation that we have," he said, "the country would be indefinitely better off. If congress and the state legislatures were to meet this winter, pass the appropriation bills necessary for five years and then adjourn for that time the country would benefit thereby." It is the opinion of many that a great deal of money could be saved in the operation of the post office as, for example, through changes in the manner of rural delivery; so much does politics enter, however, that this is impossible. There is always a tendency on the part of officers and bureaus of the government to take unto themselves powers which laws are not meant to give them. Mr. Weeks here instanced the ruling, soon after rescinded, whereby the comptroller of the currency sought to check the banks from delivering or receiving money in automobiles.

The Sherman anti-trust act came in for a degree of censure. It has frequently acted as a deterrent on business, but rather because of the manner of its enforcement than of its form. Mr. Weeks also maintained that commission regulation sometimes was a deterrent to private initiative and witnessed the Interstate Commerce Commission's order in the express case, whereby even after scientific investigation rates were established that were so low that the express companies were made to operate at a deficit.

Mr. Peters told of the problem the Long Island has worked out in its territory, emphasizing the importance of truck farming as a revenue producer for his road. He also spoke of demonstration farms making the claim that the Long Island had the first of that kind in the country.

The proceedings of the third day, Thursday, will be reported in a later issue.

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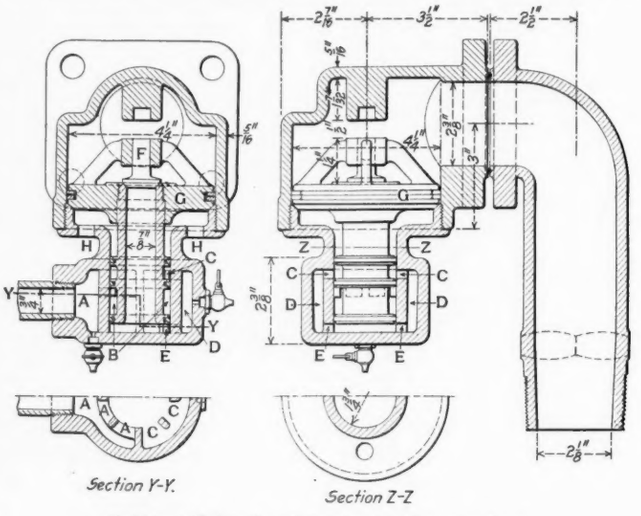
GERMAN LOCOMOTIVES AND THE COPPER SHORTAGE.—The Nakskov Tidende, of Copenhagen, says that the railway company owning the local Kragenroe (Norway) line has just taken delivery of some locomotives from Germany under circumstances which indicate Germany's lack of copper. The German contractors first demanded that the locomotives should be exchanged for copper, which the company declined, pointing out the existing prohibition of copper exports. The contractors then suggested that an equal quantity of copper to that used in the locomotives should be returned, which the company also declined. Finally, the manufacturers proposed that the whole amount of the purchase should be paid in copper coin, but the company again refused, whereupon the locomotives were reluctantly delivered against ordinary payment.

## AUTOMATIC DRIFTING VALVE

A drifting valve designed for use with superheater locomotives, by means of which live steam is automatically admitted to the cylinders in small quantities when the locomotive is drifting, has been developed on the Minneapolis, St. Paul & Sault Ste. Marie. It has been used with considerable success on the Soo Line's large superheater locomotives and patents have now been secured.

As shown in the drawing, the valve is designed to replace the ordinary steam chest relief valve which it somewhat resembles in appearance. It consists of a two-part casing within which operates a piston valve with a hollow ring-packed stem. A ¾-in. extra heavy pipe from the steam turret in the cab is connected to the casing and admits steam to chamber *A*. A valve is provided in the cab to shut off the supply of steam to this pipe if desired, but in practice the valve is open when the engine leaves the roundhouse and closed when the engine reaches the cinder pit. Through ports in the inner well of chamber *A*




**Drifting Valve for Superheater Locomotives**

steam is admitted to the annular space *B* surrounding the hollow stem of the piston valve *G*. So long as there is pressure in the cylinder and steam chest the piston valve remains seated in the position shown in the drawing. When the throttle is closed and the engine is drifting, as soon as a vacuum forms atmospheric pressure acting upward against the piston valve through the ports *H* in the casing raises the piston ½ in., which is the limit of its travel. This movement places the annular space *B* in communication with ports *C*, through which steam from chamber *A* passes into chamber *D* and thence, through ports *E*, to the hollow stem of the piston. The check valve *F* is raised from its seat and steam passes directly into the steam chest and cylinders.

As soon as the engine stops or for any reason a slight pressure accumulates in the cylinder the piston valve is forced downward to its seat, thus cutting off communication between the annular space around the hollow stem and chamber *D*. This device has been found to greatly assist in the proper lubrication of cylinders where superheated steam is used.

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SPECIFICATIONS FOR EUROPEAN RAILWAY EQUIPMENT.—With the object of placing in convenient and accessible form before persons in this country who are interested in railway materials, the United States Bureau of Standards, in connection with its investigation of failures of such material, has obtained, through the courtesy of the state department, copies of specifications for railway material—rails, axles, wheels, and tires—used in several European countries. These specifications are given in full, together with a digest and discussion, in a forthcoming circular of information from the bureau. Available data concerning the types and weights of foreign railway equipment are also given.

# General News Department

The Chicago & North Western has made an advance of five per cent in the wages of station agents, telegraphers and levermen.

The shops and roundhouse of the Chicago & Illinois Midland at Taylorville, Ill., were destroyed by fire November 4; loss $65,000.

Telegraph operators and agents on the Chicago & Alton have presented a demand for a 15 per cent increase in pay and changes in working conditions.

At a public hearing in Boston, November 5, officers of the New York, New Haven & Hartford presented testimony to the effect that the current of the stream in the Cap Cod canal is so strong that the foundations of the railroad company's bridges across the canal—two of them—are threatened. Testimony of marine men was introduced to the effect that to prevent damage to the banks of the canal by the tidal currents, it will be necessary to build a lock or locks.

A chrysanthemum plant with a spread of 15 feet constituted a freight shipment carried by the New York Central recently from Dobbs Ferry, N. Y., to Cleveland, Ohio. The plant is covered with 1,200 blossoms making it literally a gigantic bouquet. It was conveyed on an open car which had been made specially to carry heavy ordinance, and was packed on edge with the lower edge resting only about 6 inches above the rails. The plant is to be exhibited in a flower show at Cleveland, November 10-15.

The Interstate Commerce Commission has just issued an order requiring every common carrier whose property is to be valued to prepare and file with the commission at Washington within six months a statement showing the name and date of the incorporation and the date of organization. It also requires a description of the railroad or portion of the railroad constructed by each separate corporation, with complete data as to mileage and termini, the length of time which such railroad was operated by each corporation and the proceedings by which any corporations were dissolved. This order also requires the filing of a diagrammatic chart showing graphically the development of the present corporate ownership of the property, to be made like a sample chart of the Cincinnati, Hamilton & Dayton, prepared by the commission.

### Lackawanna Cut-Off Opened

The new line of the Delaware, Lackawanna & Western, between Clark's Summit, Pa., and Hallstead, 40 miles long, was put in use on Saturday, November 6. Brief dedicatory exercises were held at Nicholson, on Saturday afternoon, the governor of Pennsylvania making a short address.

An account of the work on this improvemnt, including views of the Tunkhannock viaduct, the largest concrete bridge in the world, was printed in the *Railway Age Gazette* last week, page 809. Elimination of curves and grades by this cut-off will enable through trains to make their runs in considerably less time; but schedules will not be materially shortened at present.

### American Honored in China

A cablegram from Peking announces that the Chinese government has awarded to George Bronson Rea the grand prize, including among other things several thousand dollars for a national system of railways. Mr. Rea is an American engineer and journalist and the editor of the Far Eastern Review. His scheme of railways comprises a system of 20 trunk lines aggregating some 11,000 miles of line and attains a special importance because it attempts to get away from the present manner of building railways in China whereby financing and construction have been fitted to the policies of foreign governments.

Mr. Rea was at one time deputy director general of the Chinese National Railway Corporation, serving as such under Dr. Sun Yat-sen, who, after he had resigned the presidency, was empowered to build all the future railways in China. While holding this position he negotiated a contract for 1,000 miles of railway to cost $60,000,000 with Pauling & Co., of London, which with contracts for 4,000 miles was never carried out because Dr. Sun became implicated in the revolution against President Yuan Shih-Kai. Mr. Rea, however, later became adviser or technical secretary to the ministry of communications and was requested to design another national plan more in accord with the strategical needs of the government. It was about this time, December, 1913, that the competition was decided upon and engineers were invited to submit their plans with full statistics as to population, trade, cost and revenues and full data on the commercial and strategic importance of the proposed lines. Mr. Rea was on the way to completing negotiations with railway constructors of England, France, Germany and the United States for the financing and construction of 10,000 miles to cost $500,000,000 on the basis of Chinese participation in an international company when Dr. Chen Chin-tao, the financial expert of China, intervened. Before matters could be straightened out the present war broke out and negotiations were broken off.

### Trial of the New Haven Directors

The government attorneys who are attempting before Judge Hunt, of the Federal Court, in New York, to show how the New Haven throttled competition in New England spent Thursday and Friday of last week in bringing out the relations of the company with the Joy Steamship Company. The New Haven made successful efforts to prevent the boat line from leasing boats and at times had to establish special rates for water transportation. Mr. Dunbaugh, at one time president of the Joy Line and also its head for two years after the New Haven had bought out the line in 1905, was on the stand on Friday. He was cross-examined by Charles F. Choate for the defense, Mr. Choate aiming to show that the Joy Line before 1905 cut the regular rates, sometimes made special rates to shippers and absorbed some pier delivery charges, whereupon the New Haven had to take steps to protect itself. The witness expressed the opinion that the arrangement made in 1905 resulted in better service.

Chester W. Chapin, former owner of the Central New England, testified on Monday relative to that roads attempt to secure access to Springfield, Mass., in which it was successful despite the hostility of the New Haven. In 1904 Mr. Chapin sold his interest in the Central New England to the New Haven.

Mr. Chapin was followed by Mr. Mellen, who again took the stand to testify concerning the New Haven's activities while he was president. At this time the government introduced the following letter written to President Hall, November 21, 1895, Mr. Mellen being at that time president of the Northern Pacific:

"My idea of the Central New England has been never to handle it as a through line as it is run today. My idea is to operate it from Hartford to Poughkeepsie as a local road, merely giving service sufficient to take care of local traffic. It is an acquisition necessary to the New Haven as a second step to the acquisition of the New England, as otherwise it would develop into a formidable competitor."

Mr. Mellen on Wednesday told how as president of the New Haven in 1904 he acquired control of the Central New England for only $5,000,000, whereupon William Rockefeller congratulated him for the acquisition at that low price.

Mr. Mellen wrote to J. P. Morgan in March, 1904, regarding the Poughkeepsie Eastern, which was in receivership, and was not making operating expenses, but owned valuable terminals, saying: "The Poughkeepsie Eastern has a nuisance and real estate value on account of terminals in Poughkeepsie which we could use. I have not the authority to purchase the Poughkeepsie Eastern, which is worth $150,000, but I think we could depend upon the indulgence of the directors if we overstep our authority and ask approval afterwards."

At the request of one of the government attorneys, Mr. Mellen explained what he meant "nuisance value" by saying: "I

objected very seriously to seeing any property I could use belonging to anybody but the New Haven."

Mr. Mellen on Wednesday testified regarding the New Haven's attempts to hinder water competition and concerning its purchase of a number of competing water lines.

### Progress of Federal Valuation

The President's Conference Committee for the federal valuation of the railroads in the United States has issued the following statement, showing the progress of the federal field parties to September 30, 1915:

| Road | Date Division Valuation Forces Began Work | Miles of Road | Road and Track | Total miles inspected and inventoried to date: Bridges | Buildings | Signals | Telegraph and Telephone | Total miles "Adjacent Similar Land" inspected |
|---|---|---|---|---|---|---|---|---|
| EASTERN GROUP. | | | | | | | | |
| Boston & Maine | 4—29—14 | 2434 | 2246 | 798 | 798 | 835 | 2326 | 1235 |
| C. & E. I. | 5— 2—14 | 1140 | 1104 | 1102 | 1102 | 989 | 1123 | 989 |
| C., C., C. & St. L. | 8—24—14 | 2381 | 1960 | 1441 | 820 | 1952 | 2218 | .... |
| Pennsylvania | 1— 1—15 | 5919 | 1248 | 1039 | 1039 | 890 | 1058 | 210 |
| N. Y., N. H. & H. | 3—31—15 | 2046 | 553 | .... | .... | .... | .... | 108 |
| Boston & Albany | 4—21—15 | 392 | 159 | 106 | .... | .... | .... | .... |
| C., I. & L. | 5—25—15 | 610 | 424 | 610 | .... | .... | 386 | .... |
| Ann Arbor | 6— 1—15 | 292 | * 292 | 292 | 292 | 292 | 292 | .... |
| Maine Central | 8—14—15 | 1057 | 102 | .... | .... | .... | 63 | .... |
| Bangor & Aroostook | 8—16—15 | 626 | 106 | .... | .... | .... | .... | .... |
| Total | ..... | 16897 | 8194 | 5388 | 4051 | 4958 | 7466 | 2542 |
| WESTERN GROUP | | | | | | | | |
| Texas Midland | ..... | 111 | * 111 | 111 | 111 | 111 | 111 | 111 |
| N. O., T. & M. | ..... | 173 | * 173 | 173 | 173 | 173 | 173 | 173 |
| Kansas City Southern | ..... | 878 | * 878 | 878 | 878 | 878 | 878 | 878 |
| S. P., L. A. & S. L. | ..... | 994 | * 994 | 994 | 994 | 994 | 994 | 994 |
| E., J. & E. | ..... | 211 | * 211 | 211 | 211 | 211 | 211 | 211 |
| Western Pacific | ..... | 981 | * 981 | 981 | 981 | 981 | 981 | 981 |
| Quincy Western | ..... | 6 | * 6 | .... | .... | .... | .... | .... |
| Missouri Southern | ..... | 54 | * 54 | 54 | 54 | 54 | 54 | 54 |
| Miss. Riv. & B. Terre | ..... | 54 | * 54 | 54 | 54 | 54 | 54 | 54 |
| Arizona & Swansea | ..... | 21 | * 21 | .... | .... | .... | .... | .... |
| United Verde & Pac. | ..... | 26 | * 26 | .... | .... | .... | .... | .... |
| Cape Girardeau Nor. | ..... | 106 | * 106 | 106 | 106 | 106 | 106 | .... |
| M., St. P. & S. S. M. | 5— 1—14 | 4125 | 2109 | 404 | 404 | 404 | .... | 500 |
| Great Northern | 5— 3—14 | 7321 | 4597 | 1927 | 1927 | 3504 | 6495 | 592 |
| Rock Island | 8— 1—14 | 7680 | 5711 | 1667 | 1667 | 720 | 7210 | .... |
| Chicago & Northwestern | 9— 2—14 | 8346 | 91 | 91 | 91 | 91 | 91 | 91 |
| St. Louis Southwestern | 11—12—14 | 1568 | 747 | 747 | 747 | .... | 747 | 747 |
| Ill. Cent. (Y. & M. V.) | 11—18—14 | 5960 | 1673 | 1726 | 1726 | 1166 | 4077 | 1506 |
| Santa Fe System | 12— 4—14 | 11117 | 1109 | 1109 | 1109 | .... | 2107 | .... |
| Sou. Pac. (Pacific District) | 1— 3—15 | 6906 | 248 | .... | .... | 561 | 705 | .... |
| Chi., Mil. & St. Paul | 5—22—15 | 9611 | 1271 | .... | .... | .... | .... | 498 |
| Total | ..... | 66249 | 21171 | 11233 | 11233 | 10008 | 24994 | 7390 |
| SOUTHERN GROUP. | | | | | | | | |
| Norfolk Southern | 2—27—14 | 903 | 903 | 903 | 903 | 903 | 903 | .... |
| Atlanta, Birm. & Atl. | 2—10—14 | 658 | 658 | 658 | 658 | 658 | 658 | 650 |
| Central of Georgia | 7— 8—14 | 1972 | 1972 | 1959 | 1902 | 1972 | 1972 | 1972 |
| Savannah & N. W. | 2—18—15 | 109 | 109 | 109 | 109 | .... | 109 | .... |
| Charleston & W. Car. | 5—29—15 | 341 | 341 | None | None | None | 297 | .... |
| Georgia, South. & Florida | 1— 2—15 | 605 | 605 | 605 | 605 | 605 | 605 | .... |
| Mobile & Ohio | 6—15—15 | 1114 | 600 | None | None | None | None | .... |
| Southern | 7—14—15 | 7000 | 275 | None | None | None | None | .... |
| Total | ..... | 12702 | 5463 | 4234 | 4177 | 4138 | 4544 | 2622 |
| Grand Total | ..... | 95848 | 34828 | 20885 | 19461 | 19104 | 37004 | 12554 |

*Field work of Roadway and Track parties, completed.

### Chicago Switchmen Ask Advance in Pay

A committee representing the switchmen employed in the Chicago switching district who are members of the Brotherhood of Railroad Trainmen has presented to the 18 railroads entering Chicago on which their members are employed a request for an advance in pay of five cents an hour over the rates provided for in the agreement of April 17, 1913; and the railroads have appointed a Conference Committee of Managers, of which George Hannauer, general manager of the Indiana Harbor Belt, is chairman, to negotiate with representatives of the switchmen.

There are now about 3,000 switchmen employed in the Chicago district on the roads on whom the demand has been made, who are receiving the following rates: Night foremen, 40 cents; night switchmen, 38 cents; day foremen, 38 cents; day switchmen, 35 cents. It is estimated by the railways that to grant the five cent increase demanded would increase their expenses by $500,000 a year. The members of the Switchmen's Union who are employed on nine of the roads have not submitted demands, but the managers point out that any increase given to the members of the Brotherhood of Railroad Trainmen would have to be given to all switchmen in the Chicago district, which would include a total of 5,000 men, and would involve a total additional expenditure of $700,000 a year. The railroads also say that the increase in wages could not be confined to the Chicago district, as the rates of pay prevailing in Chicago are used as the basis for rates throughout the western territory, and if an advance of five cents an hour were extended throughout the western territory the additional expenditure involved would run into millions, whereas if it were not extended outside of the Chicago switching district, an additional burden would be placed on the commerce of Chicago.

The railroad managers are not entirely clear as to whether the local committees are backed by the Brotherhood of Railroad Trainmen organization, as the brotherhood has recently joined the movement for an eight-hour day, while the Chicago switchmen are asking for the advance in pay on the basis of their present working day. It is understood that the Brotherhood of Railroad Trainmen at a recent meeting at Cleveland passed resolutions practically condemning the Chicago switchmen on the ground that their actions might tend to jeopardize the movement for an eight-hour day.

The Conference Commtitee of Managers consists of the following: George Hannauer, general manager, Indiana Harbor Belt Railroad, chairman; J. H. Brinkerhoff, general superintendent, Belt Railway, vice-chairman; H. O. Dunkle, general manager, Erie; W. J. Towne, assistant general manager, Chicago & North Western; P. L. Rupp, superintendent of terminals, Chicago, Milwaukee & St. Paul; E. T. Whiter, assistant general manager, Pennsylvania Lines West; J. F. Keegan, superintendent, Baltimore & Ohio; W. J. O'Brien, general superintendent, Chicago Junction Railway, and G. W. Berry, superintendent of terminals, Illinois Central.

The switchmen are represented by J. W. Richert, chairman, and W. W. McKirchy, secretary of the association of local committees of the Brotherhood of Railroad Trainmen.

### New York Railroad Club

At the next meeting of the New York Railroad Club, to be held Friday, November 19, in the Engineering Societies' building, 29 West Thirty-ninth street, New York, a paper will be presented by George D. Snyder, deputy chief engineer of the Hudson & Manhattan, on "Railroads and National Defense." This is also the annual meeting of the club.

## MEETINGS AND CONVENTIONS

*The following list gives names of secretaries, date of next or regular meetings, and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.*

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, January, 1916, Atlanta, Ga.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Next meeting, November 17, 1915, The Blackstone, Chicago.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Annual meeting, December 7-10, 1915, New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, Supt. Timber Preservation, B. & O., Mt. Royal Sta., Baltimore, Md. Next convention, January 18-20, 1916, Chicago.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York. Next meeting, December 14-15, 1915, St. Louis, Mo.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual meeting, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—E. N. Frankenberger, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg, Buffalo, N. Y.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RAILROAD MEN'S IMPROVEMENT SOCIETY.—J. B. Curran, Erie R. R., 50 Church St., New York. Meetings, alternate Thursdays, October to May, Assembly Rooms of Trunk Line Association, 143 Liberty St., New York.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York. Annual meeting, December, 1915, Waldorf-Astoria, Hotel, New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Monongahela House, Pittsburgh.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, David Keith Bldg., Salt Lake City, Utah. Regular meetings, 1st Saturday of each month, Salt Lake City.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 A. M., Piedmont Hotel, Atlanta.

TOLEDO TRANSPORTATION CLUB.—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEWARK.—John J. Kautzmann, P. O. Box 238, Newark, N. J. Regular meetings, 1st Monday in month, except July and August, The Washington, 559 Broad St., Newark.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Gen'l Agt., Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings, bi-monthly, Pittsburgh.

TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library Bldg., St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

UTAH SOCIETY OF ENGINEERS.—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Building, Chicago. Regular meetings, 3d Tuesday in month, except June, July and August, Karpen Bldg., Chicago.

WESTERN SOCIETY OF ENGINEERS.—E. M. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

# Traffic News

The Missouri Pacific has put into effect an improved time table of suburban trains on its line into St. Louis, shortening the time of many of them.

The Baltimore & Ohio, the Chesapeake & Ohio and the Norfolk & Western announce that beginning December 15 there will be an advance of about 15 cents a ton in the rates on coal from the mines in West Virginia to western points.

The registered tonnage passed through the canals at Sault Ste. Marie, Mich., and Ontario, during October amounted to 9,283,260 net tons. The total freight amounted to 11,557,851 short tons, of which 9,399,436 was eastbound and 2,158,415 was westbound. The total number of vessel passages was 3,231.

The Georgia College of Agriculture is running an instruction train over a large part of the railways of the state, the itinerary providing for stops at 200 towns, and trips to occupy about 100 days. Pure-bred animals will be carried on the train to be exhibited. The United States Bureau of Animal Industry and the railroads will co-operate with the state officers.

It is announced in West Virginia that the railroads carrying coal from that state to western points have decided not to make the proposed advance of 15 cents a ton in the rate for transportation which had been decided upon with a view of putting it into effect on December 15. The shippers are said to have convinced the roads that a large falling-off in traffic would result.

The meeting of the Southern Classification Committee, scheduled for Chicago on November 8, has been indefinitely postponed, because a number of important lines were unable to be represented on account of a number of Interstate Commerce Commission cases being set for hearing and the great pressure under which southern roads are now working in making a revision of their tariffs to become effective on January 1.

The Missouri Pacific and the St. Louis, Iron Mountain & Southern have announced a new passenger train which is to be put in service on December 1, from St. Louis to Houston, Dallas, Galveston, Fort Worth and San Antonio. The train is to be called the Sunshine Special, and will leave St. Louis at 6:15 p. m., considerably shortening the running time between St. Louis and Texas points. The Missouri, Kansas & Texas also announced an additional train from St. Louis to San Antonio, to be put in service on December 1, to leave St. Louis about 6:30 p. m., and arrive in San Antonio at 9:30 the following evening.

The temporary rate of $3 a ton, announced by the Panama Railroad on October 6, for the transfer of freight between steamers on the Atlantic and Pacific oceans, on account of the closing of the canal by slides, was cancelled effective on October 31, and rates ranging from $2 to $15 a ton, according to classification, were to be put in effect. The announcement of the new rates, however, caused several protests from ship owners, which were followed by an announcement that the secretary of war has decided that in view of the many questions involved in changing from the $3 flat rate to the classified rate, the flat rate will be temporarily continued under the conditions now in effect until he has had a full opportunity to thoroughly investigate the subject. During the month of August, according to the Canal Record, for the first time since February, the cost of the items charged to operation and maintenance of the canal was more than the amount of tolls collected. The deficit amounted to $63,177, which reduces the excess of tolls over expenses for the present fiscal year from $117,570 at the end of July, to $54,392 at the end of August. The charges for dredging in the Gaillard cut during August were nearly half of the total expense of operation and maintenance.

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THE ALTAI RAILWAY OF SIBERIA.—The construction of the Altai Railway is reported to be almost completed. It will soon be opened to traffic. This new line will serve the richest grain and mining areas of Siberia. Its present length is 500 miles. Its central offices will be in Barnaul.

# Commission and Court News

## INTERSTATE COMMERCE COMMISSION

The commission has denied the petition of the carriers for a rehearing of the Western advance freight case. It has, however, on its own initiative, ordered an investigation of rates, rules, and practices of Western railroads in relation to the transportation of live stock, fresh meats, and packing-house products. These commodities are among those on which the roads sought to have rates increased. No reason was assigned for the refusal to reopen the case.

Alleging that none of the benefits expected from the original Shreveport rate case have accrued to Shreveport or the neighboring territory, the Railroad Commission of Louisiana has filed another complaint with the Interstate Commerce Commission asking in effect that the class freight rate scale prescribed by the commission in its original and supplemental orders be made to apply intrastate in Texas. It is asserted that by reason of the competitive conditions now surrounding traffic between Shreveport and Texas points, the relief sought in the original petition and the supplemental petition will not be obtained until an investigation is made by the commission of the interstate rates from and to Shreveport, to and from all points on the lines of the respondents in the state of Texas.

### Rates on Distillers' Supplies

*Kentucky Distilleries & Warehouse Company v. Louisville & Nashville, et al. Opinion by Commissioner Meyer.*

The commission finds unreasonable the present rates of the Louisville & Nashville on distillers' supplies, consisting of corn, rye, malt, empty barrels and glass bottles from Louisville, Ky., and Cincinnati, Ohio, to Kellers, Silver Creek, Lair, Athertonville, New Hope, Coon Hollow and Withrow, Ky. Rates in effect prior to February 10, 1910, are ordered. (36 I. C. C., 293.)

## STATE COMMISSIONS

The Alabama Public Service Commission—which, by a law passed this year, has taken the place of the former state railroad commission—has denied an application of the railroads for authority to continue beyond December 1 a ten per cent advance in certain freight rates which is now in effect and which was authorized some months since. The commission holds that business is now resuming a normal condition and that the order permitting the advance was intended only to cover the period of serious depression.

The Illinois Public Utilities Commission began a hearing at Chicago on November 9, on the tariffs filed by the railways providing for a general five per cent advance in intrastate freight rates. The tariffs were filed about the time of the Interstate Commerce Commission's decision in the general five per cent advance case, but have been suspended from time to time by the commission. Tuesday, Wednesday, Thursday and Friday of this week were set aside for a general presentation of the case, including financial and accounting matters, the first two days to be devoted to respondents' evidence and the next two days to protestants' evidence and rebuttal. Separate hearings on individual commodities have been set for later dates up to January 13, 1916.

## COURT NEWS

The United States district court in Omaha, Neb., has granted a temporary injunction restraining the enforcement of the Nebraska two-cent passenger fare law, so far as the Missouri Pacific is concerned.

### Misrouting Does Not Cause Liability for Shippers' Act

A railroad contracted to route horses through a certain town and failed to do so. The shipper's agents, upon their failure to appear on the expected train, wired to destination to a commission house to take charge of the animals when they arrived. The commission house did so, putting them in a stockyards barn, where they contracted stockyards fever and subsequently died. In an action for their loss the Wisconsin Supreme Court held that the railroad was not liable, since the loss was not the result of its misrouting, but of the act of the shipper through his agents.—Rosenthal v. C. & N. W. (Wis.), 154 N. W. 367.

### Twenty-Eight Hour Law—"Opportunity to Rest"

The federal district court in North Dakota holds that the construction of section 3 of the 28-hour law, providing that when animals are carried in cars in which they can and do have opportunity to rest, the provisions as to unloading shall not apply is for the court and not for the jury. It holds that the section deals with the structure of a car in which animals are transported, without taking into account the habits of animals, and where a car is so constructed that animals transported therein, such as horses, have no opportunity to rest by lying down, the carrier must unload them, "opportunity to rest" meaning opportunity to lie down; and the fact that horses often take their rest standing cannot be taken into consideration.—Northern Pacific v. Finch, 225 Fed. 676.

### Safe Place to Work

Action was brought for the death of a fireman, killed while his engine was shifting cars in a street in Philadelphia. It appeared that the clearance between the tracks was about two feet less than the standard, but it also appeared the sidings had been located under proper municipal authority, and had been in use for 15 years. While rounding a curve near which a car was temporarily standing on the adjoining track, the fireman leaned out beyond the tender and came in contact with the car. It was held by the Circuit Court of Appeals, Third circuit, that the railroad company was not bound to foresee the fireman's action and therefore to construct its tracks in such a manner as to guard against an event so remote and so unlikely to occur, and was not liable for the result.—Reese v. Reading, C. C. A., 225 Fed. 518.

### Animals on Tracks—Private Crossings

A railroad company agreed that in consideration of a land owner's conveyance of a right of way through his farm it would construct a grade crossing, with gates which might be left open at the land owner's risk. A Washington statute requires railroad companies to fence their right of way, and permits owners of land on both sides of the right of way to put in gates at a crossing for their own use, while another statute requires land owners to keep crossing gates closed. The owner of the land left the gates open, and horses strayed through the crossing to the other portion of the farm and from there out to the country road. At a distant point they entered the railroad's right of way and were run down. In an action for their loss the Washington Supreme Court held that, while the contract supplanted the statutes as between the parties, the railroad company could not escape liability on the contractual grounds; the plaintiff assuming the risk of leaving the crossing open only in so far as accidents might happen on the crossing.—Snodgrass v. Spokane & Inland Empire (Wash.), 151 Pac. 815.

### Injury to Trespasser on Yard Track

Action was brought for the killing of plaintiff's infant son on defendant's track. The railroad had fences along both sides of its right of way within yard limits, and had posted notices to prevent trespassing. After these had been ignored and broken down, the company continued to warn trespassers and children from the right of way, though both adults and children frequently crossed the tracks. The Michigan Supreme Court holds that there was no express or implied invitation to cross the tracks at that place, and those doing so were trespassers or licensees. It is well settled that railroads are not required to fence their yard limits, and a failure to do so is not evidence of negligence. The child suddenly appeared on the track when the train was within 200 feet of him, and too near to be stopped before striking him. It was held that the accident resulted from the sudden and unanticipated act of the child itself, which could not be foreseen, or, in the reasonable operation of the road, guarded against, and there was no liability for its death.—Hoover v. Detroit, G. H. & M. (Mich.), 154 N. W. 94.

# Railway Officers

### Executive, Financial, Legal and Accounting

T. S. Ford, auditor of the San Antonio, Uvalde & Gulf, at San Antonio, Tex., has resigned, effective December 1.

J. L. Goree has been appointed assistant general attorney of the Chicago, Rock Island & Pacific, with office at Chicago, Ill.

Charles A. Vilas, whose appointment to the position of valuation attorney of the Chicago & North Western, as announced in the *Railway Age Gazette* of last week, was born at Madison, Wis., on September 21, 1878. He received his education at the University of Wisconsin, graduating from that university in 1899, and from the Wisconsin Law School in 1901. From 1901 to 1909 he engaged in private practice in the city of Milwaukee, Wis. He first entered railway service on June 1, 1909, when he was engaged by the Chicago & North Western as general attorney assigned to office work. In 1914 he was assigned to trial work in Cook county. In his present capacity as valuation attorney he has been assigned to legal duties in connection with the federal valuation of the road.

C. A. Vilas

Col. Wells H. Blodgett, general counsel for the receivers of the Wabash, retired from active service with the reorganization of the company on November 1. He was born at Downers Grove, Ill., in 1839, and was educated at the Illinois Institute at Wheaton, Ill. In 1873 he entered railway service as assistant attorney for the St. Louis, Kansas City & Northern, and from 1874 to 1879 served as general attorney for the same road. From 1879 to 1884 he was general solicitor for the Wabash, St. Louis & Pacific; from 1884 to 1889, general counsel for the receivers of the Wabash Lines; from 1889 to August 8, 1901, general solicitor for the Wabash Railroad, and from August 18, 1911, to November 1, 1915, general counsel for the receivers of the same road. He served through the Civil War in the volunteer service, and was mustered out in July, 1865, as colonel of the Forty-eighth Regiment, Missouri Volunteers.

W. H. Blodgett

E. M. Durham, Jr., has been appointed general agent of the Cincinnati, New Orleans & Texas Pacific with headquarters at Chattanooga, Tenn., reporting to the president or vice-president.

E. M. Willis, secretary to the president of the New York, New Haven & Hartford, has been appointed assistant to the president with office at Boston, Mass. Mr. Willis is a director of the Berkshire Street Railway Company, the Vermont Company, the Hoosick Falls Railroad Company and the Old Colony. He formerly served as assistant chief clerk to President Elliott on the Northern Pacific.

Arthur Coppell, of Maitland, Coppell & Co., New York, N. Y., has been elected president of the Denver & Rio Grande, succeeding B. F. Bush. It is understood that the election is temporary and that H. U. Mudge, who has just resigned as chief executive officer of the Chicago, Rock Island & Pacific, will be elected shortly.

The Wabash Railway having taken over the property of the Wabash Railroad on November 1, the following appointments are announced: J. E. Taussig, assistant to the president; J. L. Minnis, general solicitor; S. E. Cotter, general manager; F. L. O'Leary, local treasurer; T. J. Tobin, auditor; W. C. Maxwell, general traffic manager; T. J. Frier, purchasing and supply agent, and Dr. M. P. Parrish, chief surgeon, all with headquarters at St. Louis, Mo.

At a meeting of the directors of the Chicago, Rock Island & Pacific in Chicago on November 5, John G. Shedd, president of Marshall Field & Co., Chicago, was elected chairman of the board, and N. L. Amster, of Boston, was elected chairman of the executive committee, succeeding T. M. Schumacher, who resigned both offices some time ago. J. M. Dickinson, receiver, also has announced the appointment of J. E. Gorman, vice-president, in charge of traffic and chief traffic officer for the receiver, as chief executive officer, succeeding H. U. Mudge, who resigned that office and as president and director.

### Traffic

Elmer H. Wood, whose retirement as freight traffic manager of the Union Pacific has been announced in these columns, was born on January 12, 1854, at Clarkson, Monroe County, N. Y. He was educated at Grand Prairie Seminary, and entered railway service in 1875. From November, 1875, to June, 1876, he was station agent and chief clerk in the general freight and passenger department of the Chicago & Pacific. From 1876 to 1884, he was chief clerk to the general agent of the Union Pacific, at Chicago, Ill. From 1884 to 1888, he was general agent in the freight department of the same road at Chicago. From 1888 to 1889, he was chief clerk in the general freight department at Kansas City, Mo. From 1889 to June 1, 1898, he was assistant general freight agent of the same railroad at Omaha, Neb. From June 1, 1898, to October 30, 1911, he was general freight agent, and on November 1, 1911, was promoted to freight traffic manager, with office in the same city. Ill health caused his recent retirement from the service of the road.

E. H. Wood

W. M. Hardin, commercial agent of the Minneapolis & St. Louis at Minneapolis, Minn., has been appointed assistant general freight agent, with headquarters in the same city.

Erwin C. Meyer, formerly traffic manager for the Banner Buggy Company, has been appointed commercial agent for the Chicago & Alton at Birmingham, Ala., vice C. R. Prince, resigned. Effective November 1.

Charles A. Call, general passenger and freight agent of the New York, Westchester & Boston, at New York, has been appointed manager of the industrial bureau of the New York, New Haven & Hartford, with office at Boston, Mass., to succeed W. H. Seeley, who has resigned to go into other business. Mr. Call began railway work in 1883 in the passenger department of the New York & New England. In 1898 he was appointed passenger agent at Boston, and in 1905, was appointed general

agent of the passenger department of the New York, New Haven & Hartford at New York City. In 1908 he became general agent of the New Haven at Boston in charge of the general office and in 1912 was appointed general passenger and freight agent of the New York, Westchester & Boston.

### Operating

P. A. Ellerman, traveling chef of the Lehigh Valley, has been appointed superintendent of dining car service, with headquarters at Easton, Pa., succeeding G. E. Cooledge, resigned.

Joseph M. Boyd, trainmaster of the Northern Pacific at Dickinson, N. D., has been transferred to the Rocky Mountain division, with headquarters at Missoula, Mont., vice D. J. Hagerty, resigned. Effective November 1.

David S. Farley has been appointed superintendent of the Plains division of the Atchison, Topeka & Santa Fe, at Amarillo, Tex. Mr. Farley entered the service of the Santa Fe on October 15, 1887, in the local freight station at Denver, Colo. From that time until July, 1899, he held various clerical positions for Santa Fe in that city. From August 1, to August 18, 1899, he handled Santa Fe accounts for the Colorado & Southern; from August 18, 1899, to May 12, 1900, he was chief clerk to the agent of the Santa Fe, at Pueblo, Colo.; from May 12, 1900, to August 1, 1907, he was chief clerk to the superintendent in charge of the station, at Kansas City, Mo.; from August 1, 1907, to July, 1915, he was superintendent and agent at Kansas City. In July, 1915, he was called to Amarillo, Tex., to take the place of Daniel Elliott, superintendent of the Plains division, who had been forced to leave active service on account of illness.

D. S. Farley

E. B. Heath, trainmaster and traveling engineer of the Spokane, Portland & Seattle, has been promoted to assistant superintendent of the Spokane & Inland Empire and the Spokane Traction Company, with headquarters at Spokane, Wash.

Homer W. Loomis, trainmaster of the New York Central at Hillsdale, Mich., has been promoted to the same position on the main line at Toledo, Ohio. J. J. Crowley, assistant trainmaster at Elkhart, Ind., has been appointed to succeed Mr. Loomis at Hillsdale.

F. L. Sheppard, general superintendent of the New Jersey division of the Pennsylvania Railroad, at New York, has been granted leave of absence on account of illness, and C. S. Krick, superintendent of the Philadelphia Terminal division at West Philadelphia, Pa., will temporarily assume all the duties of the general superintendent, with the title of acting general superintendent, with headquarters at New York.

J. H. Carlisle, superintendent of the Clifton Forge division of the Chesapeake & Ohio, at Clifton Forge, Va., has been appointed assistant to the general superintendent of transportation with headquarters at Richmond, Va. F. S. Rockwell, trainmaster at Silver Grove, Ky., has been appointed superintendent of the Clifton Forge division with headquarters at Clifton Forge, Va., vice Mr. Carlisle, and D. T. Evans, road foreman of engines at Silver Grove has been appointed trainmaster of the Cincinnati division with headquarters at Covington, Ky., vice Mr. Rockwell.

F. E. Lewis, superintendent of dining cars and hotels for the Union Pacific Railroad, has been appointed manager of dining cars and hotels for the Union Pacific System. E. C. Sutton, assistant superintendent of dining cars and hotels of the Union Pacific Railroad, has been promoted to superintendent of dining cars and hotels to succeed F. E. Lewis. H. A. Hansen has been appointed assistant superintendent of dining cars and hotels for the railroad, vice E. C. Sutton, promoted. The headquarters of all three officers will be at Omaha, Neb., and their appointments were effective November 1.

H. E. Allen, superintendent of the Louisiana division of the Chicago, Rock Island & Pacific, at El Dorado, Ark., has been transferred to the Nebraska division, with headquarters at Fairbury, Neb., vice W. A. Sheahan, resigned. D. Van Hecke, superintendent of the Amarillo division, with headquarters at Amarillo, Tex., has been appointed superintendent of the Louisiana division, to succeed Mr. Allen. H. J. Sewell, trainmaster at El Reno, Okla., has been appointed acting superintendent of the Amarillo division of the Chicago, Rock Island & Gulf, with headquarters at Amarillo, Tex., vice D. Van Hecke, resigned. Appointments effective November 1.

Thomas E. Hill, superintendent of the Louisiana division of the Illinois Central, has been appointed superintendent of the Kentucky division, with office at Louisville, Ky., vice L. A. Downs, promoted. George M. Patterson, superintendent of the Springfield division, with headquarters at Clinton, Ill., has been transferred to McComb, Miss., to become superintendent of the Louisiana division. The jurisdiction of the Louisiana division has been changed so as no longer to include the New Orleans terminals. F. D. Mooney, terminal superintendent, has been appointed superintendent of the New Orleans terminal division. Joseph W. Hevron, trainmaster at Kankakee, Ill., has been promoted to superintendent at Clinton, Ill., vice G. M. Patterson. C. A. Thelan has been appointed trainmaster at Kankakee to succeed Mr. Hevron.

Beginning on November 15, the Ozark division of the St. Louis & San Francisco, will be consolidated with the Southeastern division, the combined divisions to be known as the Southern division. R. F. Carr, superintendent of the Southeastern division, will be superintendent of the Southern division. J. P. Hulehan, assistant superintendent of the Ceneral division, with headquarters at Ft. Smith, Ark., has been appointed assistant superintendent of the Southern division, with office at Thayer, Mo. C. H. Hensley, assistant superintendent of the Ozark division, at Thayer, Mo., has been assigned to other duties. That portion of the Red River division of the Frisco, which extends from Sapulpa, Okla., to Sherman, Tex., will be added to the Southwestern division, effective November 15. C. F. Hopkins, present superintendent of the Southwestern division, will continue in that position. J. M. Chandler, superintendent of the Red River division, with office at Francis, Okla., has been appointed assistant superintendent of the Southwestern division, with headquarters at Oklahoma City, Okla., succeeding W. M. Coombs, assigned to other duties. J. W. Claiborne, superintendent of the River and Cape division, with office at Chaffee, Mo., has been appointed assistant superintendent of the Southwestern division at Sapulpa, Okla., vice W. H. Hutchison, assigned to other duties. C. F. Kirshner, assistant superintendent of station service of the Red River division, has been assigned to other duties, this position having been abolished. That part of the Red River division of the Frisco extending from Hope, Ark., to Ardmore, Okla., will be added to the Central division, effective November 15. C. H. Baltzell, superintendent of the Ozark division, at Thayer, Mo., will be transferred to the Central division as superintendent, with headquarters at Ft. Smith, Ark. W. G. Koch, superintendent of the Ceneral division, under the present organization, has been appointed assistant superintendent of the new division and will continue to have headquarters at Ft. Smith. The Northern division of the Frisco will be increased to include the Kansas division, effective November 15. O. H. McCarty, superintendent of the Northern division, will continue in that position for the Northern division, with headquarters at Ft. Scott, Kan. H. H. Brown, superintendent of the Kansas division, has been appointed superintendent of the Western division, with headquarters at Enid, Okla., vice C. T. Mason, transferred. B. S. Shirk, assistant superintendent of the Eastern division, at Springfield, Mo., has been appointed assistant superintendent of the Western division. J. W. Marring and George Bailey, assistant superintendents of the Western division, have been assigned to other duties. F. E. Brannaman, assistant superintendent of the Eastern division as Springfield, Mo., has been appointed assistant superintendent of the Western division, with headquarters at Enid, Okla., vice J. W. Claiborne, transferred. C. T. Mason, superintendent of the Western division, at Enid, Okla., has been appointed assistant

superintendent of the Eastern division, vice B. S. Shirk. The position of assistant superintendent of station service of the Eastern division, has been abolished.

### Engineering and Rolling Stock

J. H. Baker has been appointed roadmaster on the Crows Nest subdivision of the Canadian Pacific with headquarters at Lethbridge, Alta., in place of J. Carlson.

W. L. Kinsell, chief clerk to David Van Alystyne, assistant to the vice-president of the New York, New Haven & Hartford, has been appointed assistant shop superintendent at Readville, Mass.

J. M. Campbell, roadmaster of district 2 of the Manitoba division of the Canadian Pacific with headquarters at Winnipeg, Man., has joined the force of engineers which has left Canada to work on railways in Russia.

E. L. Landorph, resident engineer of district 2 of the Manitoba division of the Canadian Pacific with headquarters at Winnipeg, Man., has been appointed resident engineer of district 1 of the Manitoba divison with office at Kenora, Ont., succeeding T. D. Ruggles, resigned.

J. L. Starkie has been appointed assistant engineer of the Atchison, Topeka & Santa Fe, with headquarters in Galveston, Tex., succeeding E. H. Olson. R. C. Emmett has been appointed acting roadmaster on the New Mexico division, with headquarters in Las Vegas, N. M., vice L. Lenehan.

M. E. Hamilton, northwest railroad representative of the Garlock Packing Company, with headquarters at St. Paul, Minn., has been appointed general air brake inspector of the St. Louis & San Francisco, effective November 1. Mr. Hamilton was formerly general air brake instructor on the Atchison, Topeka & Santa Fe.

Frank R. Judd, whose appointment as engineer of buildings of the Illinois Central has been announced in these columns, was born in Hamilton, Ont., on May 28, 1882. He attended the Chicago Manual Training School from 1896 to 1899, and entered railway service on October 18, 1899, with the Illinois Central. From that time until November, 1909, he did draftinfi and field work for the Illinois Central, the Chicago, Rock Island & Pacific, and the Crane Company of Chicago. From November, 1909, to December, 1913, he was chief draftsman of the bridge and building department of the Illinois Central, and from December, 1913, until February, 1915, was assistant engineer in charge of a joint depot and track elevation project at Memphis, Tenn. From February, 1915, to October, 1915, he was in charge of special surveys, track plans and building designs at Chicago. By virtue of his recent appointment he became engineer of buildings of the same railroad with office at Chicago.

### Purchasing

F. B. Calhoun has been appointed division storekeeper of the Atchison, Topeka & Santa Fe, at Waynoka, Okla., vice Erle Preston. R. L. Stewart, division storekeeper at Dodge City, Kan., has been appointed division storekeeper at Wellington, Kan., vice Louis Mathiasmier, transferred to the Topeka general store. H. W. Hallenbeck, division storekeeper at Belen, N. M., has been transferred to Dodge City, vice R. L. Stewart. Erle Preston, division storekeeper at Waynoka, Okla., has been transferred to Belen, N. Mex., succeeding H. W. Hallenbeck.

George G. Yeomans, formerly assistant to the president of the Wabash, has been appointed purchasing agent of the New York, New Haven & Hartford, with headquarters at Boston, Mass., succeeding H. A. Fabian, resigned, effective November 15. Mr. Yeomans was in the service of the Chicago, Burlington & Quincy for 23 years, and during that period worked in practically every position in the purchasing agent's office, including the position of purchasing agent, which he filled for seven years. About 1905 he resigned to become assistant to President C. F. Delano, of the Wabash, leaving in 1911, when the road went into the hands of receivers. Since that time he has made a specialty of investigating methods of purchasing and handling supplies on various large roads, including the Santa Fe, the Baltimore & Ohio, the Chicago & North Western, the New York, New Haven & Hartford and others.

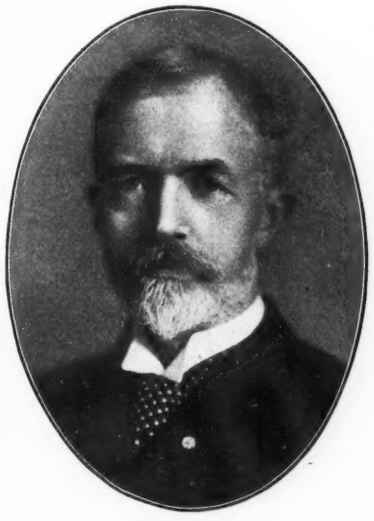
## OBITUARY

R. S. Stephens, until June 1, 1913, purchasing agent at Houston, Tex., for the Galveston, Harrisburg & San Antonio, the Houston & Texas Central, and the Texas & New Orleans, died at his home in Houston on November 2.

Daniel Elliott, superintendent of the Plains division of the Atchison, Topeka & Santa Fe, died at his home in Amarillo, Tex., on October 19. He was born on October 19, 1856, in Northfield, Vt., and entered railway service at the age of sixteen. In 1882 he was employed by the Santa Fe for the first time as a brakeman on the Atchison branch. In less than a year he was promoted to yard foreman at Las Vegas, N. M., and later was appointed roadmaster with headquarters at the same place. In 1908 he was appointed superintendent of the Plains division, with office at Amarillo, Tex. Poor health forced him to retire from active service in July, 1915.

### W. F. Allen

William Frederick Allen, general secretary of the American Railway Association and its predecessors, since 1875, and manager of the Official Railway Guide since 1873, died on November 9 at his home in South Orange, N. J. Mr. Allen was one of the most widely known men in American railroad life. He was born October 9, 1846, at Bordentown, N. J., and received his education in the Bordentown Model School and the Episcopal Academy in Philadelphia. He began railway service in May, 1862, as a rodman in an engineering corps of the Camden & Amboy, becoming in May, 1863, assistant engineer of the same road. From February, 1868 to 1872, he was resident engineer of the West Jersey Railroad. In 1872 he entered the service of the National Railway Publication Company, and shortly afterwards was made assistant editor of the Official Railway Guide. In June, 1873, he became the editor and manager of the Guide, and has been at the head of it ever since. In April, 1875, he was appointed secretary of the General Time Convention and in October, 1877, of the Southern Railway Time Convention. In April, 1886, the American Railway Association succeeded these organizations and Mr. Allen continued as secretary; and in June, 1909, his title was made general secretary and treasurer which positions he held until his death.



W. F. Allen

In 1910 Mr. Allen was elected vice-president of the National Railway Publication Company and since 1914 had been its president. At the time of his death he was also secretary of the General Managers' Association of New York and the Bureau for the Safe Transportation of Explosives.

In his capacity as secretary of the American Railway Association Mr. Allen has become intimately acquainted with a larger number of railway managers than any other man in the country; and he has had a corresponding measure of influence. The presidency of the association has been held successively by different men, from different parts of the country, but the secretaryship has been a permanent feature, and his administration of the office has been an important element in the association's prosperity.

Outside the railroad world Mr. Allen was known chiefly as the "father of standard time." To him was referred for solution, in 1881, the problem of working out a standard of time reckoning that would obviate the confusion resulting from the use of the fifty-odd standards then prevailing on the railroads in the United States. His report was submitted to the Association in 1883. It provided for an elastic boundary line between the hour zones, instead of a strictly longitudinal division; and

in its details fixed every point at which the hour change was to be made, and embodied every practical provision for putting the system into immediate effect. The report was unanimously endorsed by the Association, and Mr. Allen thereupon accomplished the unique diplomatic task of securing its adoption by the numerous diverse interests whose approval was essential to success. In this work he had the co-operation of the Cambridge and the National Observatories.

The change in the operating time tables of the many different railroads was made at noon, eastern time, on Sunday, November 18, 1883, without delay or disturbance. For this achievement Mr. Allen was elected to honorary membership in many American and foreign scientific societies, and received the honorary degree of master of science from Princeton University. Mr. Allen was a delegate of the United States Government to the International Meridian Conference in 1884, and to the International Railway Congress at Paris in 1900. He was a delegate of the American Railway Association to the International Railway Congresses at London, 1895; Paris, 1900; Washington, 1905; Berne, 1910. Since 1910 he has been a member of the Permanent Commission of the Congress Association.

In 1905 he had charge of all the arrangements for the session at Washington. For his services in connection with the Congress he was decorated by the order of Leopold by the Belgium government.

James F. DeVoy, assistant superintendent of motive power for the Chicago, Milwaukee & St. Paul, at Milwaukee, Wis., died at his home in that city on November 5, following an illness of eight months. He was born in Ithaca, N. Y., on June 23, 1866, and graduated from Cornell University in 1888. During his college career he won distinction not only as a football player and crew man, but as an honor student in the college of mechanical engineering. Following his graduation he entered the service of the New York Central in its mechanical department, where he remained for seven years. He was then employed by the American Locomotive Company both at Dunkirk, N. Y., and Schenectady. Fifteen years ago he came to Milwaukee as chief draftsman in the mechanical department of the Chicago, Milwaukee & St. Paul. On September 1, 1902, he was promoted to mechanical engineer, and on April 15, 1910, he was appointed assistant superintendent of motive power. At the time of his death he was a member of the executive committee of the American Railway Master Mechanics' Association, a member of the committee on design, maintenance and operation of electric rolling stock, and also a member of the committee on brake shoes and brake beam equipment and the coupler committee of the Master Car Builders' Association. From 1910 to 1911, he was president of the Western Railway Club.

J. F. DeVoy

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Lost.—The San Pedro, Los Angeles & Salt Lake, the "Salt Lake Route," has issued a "Special Bulletin on Freight Handling," which says: "LOST, between Salt Lake City, Utah, and East San Pedro, California, since 1910, through a hole in the treasury known as the 'freight claim leak,' a quarter of a million dollars. Owner, Salt Lake Route. No reward; it is gone forever. . . . A freight claim payment does nobody good. It does not even put the claimant in statu quo. He may have lost a customer, the customer a sale. An engineman receiving $6 a day who, by rough handling, causes a freight claim of $10 would better have lain off that day. A trainman drawing $100 a month who causes $150 damage to merchandise can count that month lost, so far as his value as a revenue producer is concerned."—*Howard Elliott, Salt Lake Route.*

# Equipment and Supplies

## LOCOMOTIVE BUILDING

The Erie is in the market for 10 Pacific type locomotives.

The Chicago & Eastern Illinois will purchase five Mikado type locomotives

The Standard Oil Company, Whiting, Ind., has issued an inquiry for another locomotive.

The New York, New Haven & Hartford has issued inquiries for 30 Mikado type locomotives.

The Toledo, St. Louis & Western is inquiring for prices on five Consolidation type locomotives.

The Mobile & Ohio has ordered one Mikado type locomotive from the Baldwin Locomotive Works.

The Kin Han Railway is inquiring for a number of ten-wheel locomotives.

The Georgia Southern & Florida, recently reported as being in the market for two passenger locomotives, has ordered two ten-wheel locomotives from the Baldwin Locomotive Works.

The DesMoines Union has ordered 2 six-wheel switching locomotives from the Baldwin Locomotive Works.

The Youngstown Sheet & Tube Company has ordered two six-wheel switching locomotives from the Baldwin Locomotive Works.

The Birmingham Southern is inquiring for prices on two six-wheel switching locomotives and one Consolidation type locomotive.

The Pennsylvania Railroad, which recently placed an order for 75 Mikado type locomotives with the Baldwin Locomotive Works, has issued additional inquiries for 155 more locomotives, including 45 freight and 60 switching locomotives for the Lines East, and 50 freight locomotives for the Lines West of Pittsburgh. With the 75 engines already contracted for this makes a total of 230 locomotives. It is also further reported that the Pennsylvania Lines West have ordered 52 Consolidation type locomotives from the Lima Locomotive Corporation and 10 Consolidation type locomotives from the American Locomotive Company, but this item has not been confirmed.

The Atchison, Topeka & Santa Fe, as stated recently, ordered 30 Mikado type superheater locomotives from the Baldwin Locomotive Works, all of which will have 25-in. by 32-in. cylinders, 57-in. driving wheels, a boiler pressure of 200 lb., a weight on driving wheels of 220,200 lb., a tractive effort of 59,600 lb., and a total weight in working order of 283,700 lb. The locomotives will be oil burners. The tenders will have six-wheel trucks, 10,000-gallon water tanks, and 3,300-gallon oil tanks.

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## CAR BUILDING

The Virginian Railway has issued inquiries for 250 40-ton box cars.

The Duluth & Iron Range is inquiring for 750 50-ton ore cars.

The Lehigh Valley is negotiating for the purchase of two dining cars.

The Consolidation Coal Company is in the market for 1,400 Gondola cars.

The Duluth, Missabe & Northern is inquiring for 1,000 50-ton ore cars.

The Chicago, Burlington & Quincy is in the market for 54 passenger train cars.

The Western Pacific has ordered 1,000 40-ton box cars from the Pullman Company.

The Philadelphia & Reading has ordered 20 coaches and 10

combination cars from the Harlan & Hollingsworth Corporation.

THE CHICAGO, ROCK ISLAND & PACIFIC has cancelled its inquiry for 500 center constructions.

THE NEW YORK, ONTARIO & WESTERN is contemplating the purchase of possibly 500 freight cars.

THE NEW YORK, NEW HAVEN & HARTFORD is in the market for 20 milk cars and 50 refrigerator cars.

THE ERIE has cancelled an order for 200 automobile cars recently given the Pressed Steel Car Company.

SWIFT & CO., of Chicago, have ordered 150 center constructions from the Western Steel Car & Foundry Company

THE BINGHAM & GARFIELD was reported in last week's issue as being in the market for 125 freight cars. These include 100 ore and 25 gondola cars.

THE MONTOUR RAILROAD is reported to have given the Standard Steel Car Company an order for 800 steel car bodies. This item has not been confirmed.

THE PENNSYLVANIA EQUIPMENT COMPANY is in the market for five 50-ton capacity flat bottom gondola cars either all steel or with steel underframes and strong wooden bodies.

THE DELAWARE, LACKAWANNA & WESTERN is in the market for 10 60-ft. express cars and 2 dining cars, and, as previously noted, will also purchase 1,000 box and 500 gondola cars.

THE MISSOURI, KANSAS & TEXAS, as stated last week, is inquiring for prices on 2,000 coal cars. The specifications provide for gondola cars, 41 ft. long, with a capacity of 50 tons.

THE FRENCH GOVERNMENT has ordered 1,000 four-wheel box cars from the Standard Steel Car Company. The cars will be built at the plant of the Keith Car & Manufacturing Company, Sagamore, Mass.

THE MUSCATINE & IOWA CITY has ordered 4 R. E. 70-B-11 gas electric motor cars from the General Electric Company, and will also purchase some gas-electric locomotives. See item in Railway Financial News.

THE INTERBOROUGH RAPID TRANSIT has issued inquiries for 311 steel subway cars for use on the company's new lines in the boroughs of Bronx and Queens. Included there are 234 motor cars and 77 trailers.

THE LOUISVILLE & NASHVILLE has ordered 400 underframes from the Pressed Steel Car Company. They are to be used, it is understood, for 400 gondola cars, reported in last week's issue, which the company will build in its own shops.

THE TORONTO SUBURBAN has ordered six steel coaches from the Preston Car & Coach Company, Limited. These will be center entrance interurban cars, 61 ft. long over vestibules; they will be mounted on Standard Motor Truck Company trucks, and will be equipped for 1,500 volt D. C.

THE LAKE ERIE & WESTERN has ordered eight steel frame coaches from the Preston Car & Coach Company, Limited. The cars will be 60 ft. long, will be mounted on Baldwin trucks, and will have all the features of a steam coach, including end doors, buffing attachments and M. C. B. draw bars. They are equipped for 1,500 volt D. C. with multiple unit control, and automatic air brakes.

THE PENNSYLVANIA'S inquiry for freight cars, mentioned in last week's issue, includes 1,000 box and 5,000 gondola cars for the Lines East, and 1,000 automobile box and 2,000 gondola cars for the Lines West of Pittsburgh, a total of 9,000 cars. Inquiries have also been issued for 240 passenger cars, including 100 coaches, 20 passenger and baggage cars, 55 baggage cars and 5 horse express cars, a total of 180 passenger train cars, for the Lines East, and for 18 coaches, 4 passenger and baggage cars, 6 dining cars, 12 baggage and mail cars and 20 baggage cars, a total of 60 cars, for the Lines West.

## IRON AND STEEL

THE MAINE CENTRAL is in the market for 10,000 tons of rails.

THE BALTIMORE & OHIO is inquiring for 300 tons of steel for a small pier shed.

THE CHESAPEAKE & OHIO has ordered 2,250 tons of rails from the Pennsylvania Steel Company.

THE NORFOLK & WESTERN is inquiring for prices on 2,000 tons of steel for a pier shed at Norfolk, Va.

THE CINCINNATI, HAMILTON & DAYTON is regarded to have ordered 6,000 tons of rails from the Steel Corporation.

THE CHICAGO & NORTH WESTERN has ordered 405 tons of steel from the Allen & Milwaukee Bridge Company for a terminal grain elevator at Milwaukee, Wis.

THE CHICAGO, ROCK ISLAND & PACIFIC.—Jacob M. Dickinson, receiver, has been authorized by the Federal Court to purchase 40,000 tons of rails for 1916 delivery.

THE DULUTH & IRON RANGE has ordered 10,000 tons of steel for an ore dock at Two Harbors, Minn., the contract to include approaches, ore spouts, doors and fittings.

THE CHICAGO, MILWAUKEE & ST. PAUL has ordered 110 tons of steel from the American Bridge Company, to be used for two 49-ft. approach spans and intermediate floor beams.

THE NASHVILLE, CHATTANOOGA & ST. LOUIS is reported to have ordered 7,000 tons of rails from the Tennessee Coal, Iron & Railroad Company in addition to orders previously placed.

THE ILLINOIS CENTRAL, reported in the *Railway Age Gazette* of October 22 as having ordered 15,000 tons of rails from the Illinois Steel Company, and in the October 29 issue as having ordered an additional 5,000 tons from the same company, has increased its order to include another 10,000 tons. As the company has also ordered 15,000 tons of rails from the Tennessee Coal, Iron & Railroad Company, this makes a total of 45,000 tons.

## SIGNALING

The Union Pacific will install approximately seven miles of two-arm, lower-quadrant Union Switch & Signal Company, style B, automatic block signals between East Ogden, Utah, and Gateway, on the line which has recently been double-tracked.

The Galveston, Harrisburg & San Antonio will shortly begin the construction of a 16-lever mechanical interlocking plant, with full approach and detector locking, at the crossing of its line with the International & Great Northern, at San Antonio, Tex.

BRITISH RAILWAY MEN ENLIST WITHOUT PERMISSION.—Although strict injunctions have been laid down by the Railway Executive Committee stipulating that railway men must not offer themselves for military or naval service without first obtaining the permission of their superior officer, many cases have, nevertheless, occurred in the different branches where men have taken the matter into their own hands and enlisted without troubling to inquire whether or not their services could be spared. In the majority of cases, up to the present, no action has been taken to bring these men back to their ordinary duties, the only difference drawn between members who have obtained permission and those who have not, being that in the latter case all connection with the company has been severed and the men entered up in the staff books as resigned. The efficient carrying on of transport work is quite as important to the country as the manufacture of munitions, and it is a mistaken idea of patriotism which prompts the men thus to desert.—*Railway Gazette, London.*

THE RAILWAY MEN OF THE SOUTH AFRICAN RAILWAYS WITH THE COLORS.—According to the annual report of the Union of South African Railways, out of a white staff of 31,000, 3,922 men, or 12 per cent, were on active service during the recent rebellion. The South African Engineer Corps, a unit of 650 strong, under the command of two railway officials was composed almost entirely of railway officers. The duties performed by the corps were of the first importance to the success of the operations. At the outset it was faced with difficulties in landing heavy railway material and rolling stock at places where such appliances, as existed, had been largely destroyed. The work of discharge had to be completed hurriedly to enable work to be started on shore, and many contrivances were resorted to in connection with the landing work. Extensive repairs to existing railways, damaged by the enemy, had to be undertaken. For one short section of 10 miles the line was damaged in 900 places. —*The Engineer, London.*

# Supply Trade News

Elmer B. Van Patten has been appointed sales representative of the Acme Supply Company, with headquarters at Chicago, Ill.

R. W. Burnett, for many years general master car builder of the Canadian Pacific, has been elected vice-president of the National Car Equipment Company, of Chicago, Ill.

The Toledo Scale Company announces that H. O. Hem, formerly of Kansas City, Mo., has become a member of its engineering staff in the capacity of consulting engineer, and has opened office at Toledo, Ohio.

Guy E. Tripp, chairman of the Westinghouse Electric & Manufacturing Company, is quoted as saying: "The total of war orders booked by Westinghouse Electric and subsidiaries amounts to approximately $94,000,000. This includes firm orders, orders subject to cancellation for undelivered goods by payment of an agreed profit, and orders subject to cancellation on undelivered goods on three months' notice to stop work. Out of a total of $18,695,000 5 per cent convertible bonds issued, approximately $11,500,000 have already been converted."

Judge Hazel in the United States circuit court for the western district of New York on November 4 handed down a decision holding that the present standard car lighting equipment, involving the use of an ampere-hour meter to control battery charging, as put out by the U. S. Light & Heat Corporation, Niagara Falls, N. Y., does not come under the injunction or the accounting ordered in the prior decision sustaining the Creveling Patent 747,686 recently handed down also by Judge Hazel. It was maintained by the owners of this patent that the decision was broad enough to cover the use of the ampere-hour meter system of car lighting as put out by the U. S. Light & Heat Corporation, and it was sought to bring this system into the accounting ordered by the court.

The United States circuit court of appeals for the fourth circuit, at Richmond, Va., on November 6 handed down a decision affirming that of District Judge Rose, of Baltimore, in the suit of John B. Tate v. the Baltimore & Ohio, directing a verdict for the defendant. The Tate Patent sued on, No. 643,560, dated February 13, 1900, which was for a furnace bearer or expansion pad, was held by Judge Rose and by the court of appeals to be invalid and fully anticipated by the Sharp British Patent No. 3558 of 1879. The decision is of importance to a number of railroads, as the suit was an attempt to cover, and collect damages of $22,477.50 for, the use of the well-known expansion attachment of the firebox to the frames through the mud ring instead of through the side sheets, and if the decision of the court of appeals had been adverse to the Baltimore & Ohio, other of the numerous roads using this attachment, which has been applied to locomotives in the United States as early as 1862, would doubtless have been attacked. The case was argued by O. E. Edwards, Jr., of New York, for the plaintiff, Tate, and by William A. Redding and J. Snowden Bell, of New York, for the Baltimore & Ohio.

## TRADE PUBLICATIONS

Self Rotating Hammer Drills.—The Chicago Pneumatic Tool Company, Chicago, has issued a booklet describing its "Hammer" drills for drilling rock and similar work. This booklet describes in detail and illustrates the various parts of this apparatus.

Iron Pipe.—The A. M. Byers Company has recently issued Bulletin No. 26, dealing with the excellencies of Byers genuine wrought iron black and galvanized tubing, casing, line pipe and drive pipe. The bulletin contains considerable useful information about Byers pipe, such as its resistance to corrosion, fabricating qualities, welding qualities, specifications for genuine wrought iron pipe and details about hand puddling, rolling of muck bar, skelp, etc. In the back of the book are complete tables showing not only list prices, but dimensions, areas, hydrostatic tests, etc. There are also given specific cases showing the superior rust resistance of Byers in the same service as cheaper grades of pipe.

# Railway Construction

Altus, Roswell & Pacific.—Construction work is to be resumed, it is said, on the first section of about 100 miles between Memphis, Tex., and Lubbock. This line was projected in 1911. The plans call for building an extension from Lubbock west to Roswell, N. M., also an extension east to Altus, Okla. T. C. Nobles, Houston and associates are back of the project.

Canadian Government Railways.—According to press reports, surveys are now being made by the Intercolonial from Painsec, N. B., through Baie Verte, Tidnish and Pugwash, thence to Truro, N. S., for a revised location for portions of the line. The surveys between Truro and the Nova Scotia-New Brunswick boundary are about finished and survey work on the section in New Brunswick will be finished in December.

It is reported that the National Transcontinental will build about three miles of line to the proposed site of a large pulp mill to be built at Neelands, Ont., which is 30 miles west of Cochrane.

Canadian Northern.—Train service on the Ontario division has been extended from Reul, Algoma, northwest to Port Arthur, 543 miles. The Carlton subdivision of the Western division has been extended from Laird, Sask., west to Carlton, eight miles.

Detroit, Bay City & Western.—This road has been extended from Sandusky, Mich., south to Peck, 11 miles.

Edmonton, Dunvegan & British Columbia.—Work is now under way on the branch line from Spirit river, Alta., to the Grand Prairie settlement. J. Timothy is the contractor. The route is from Spirit river settlement, thence crossing Burnt river and Bad Seal river, and via Lake Cleremont to Grand Prairie City on the Beaver river, 60 miles. The maximum grade will be 1 per cent and the maximum curvature 6 deg. The only difficult work on the line will be at the crossing of Saddle mountain. The grading work is about 60 per cent finished, and is expected to be completed by December of this year, and track laying will be completed early in 1916. (Oct. 15, p. 714.)

Farnham & Granby.—Application is being made to the Dominion parliament for an extension of time, it is said, to build the projected line from the Canadian Pacific, near Farnham, Que., north to Granby, thence northeasterly to Windsor Mills or to Richmond, about 60 miles. Pringle, Thompson, Burgess & Cote, Ottawa, Ont., are solicitors for applicants. (March 13, p. 555.)

Gulf, Colorado & Santa Fe.—Bids were received recently, it is said, for rebuilding the Gulf and Interstate division from High Island, Tex., to Port Bolivar, 27 miles, to replace the damage caused by storm and flood. It is probable that the line will be constructed over a new route to extend along East Galveston bay instead of along the shore of the Gulf of Mexico. This will increase the distance three or four miles.

Intercolonial Railway.—See Canadian Government Railways.

Jackson-Tinney Lumber Company's Line.—This company is planning to build a logging road, about six miles long, extending southwest from Wadley, Ala. Contracts for the work are to be let at once. W. J. Tinney, president, Talladega, Ala.

Kansas City & Tiffany Springs.—This company was incorporated under the Missouri laws on November 2, and proposes to construct a railway from Kansas City, Mo., to Tiffany Springs, Platte county, a distance of about 15 miles. The incorporators are T. N. Smith, Charles J. Smith, Bayless Steele and C. W. Chandler, of Kansas City, Mo.; J. N. Baird and Henry G. Post, Kansas City, Kan., and Robert Engelman, of Parkville, Mo.

Linville River.—An officer writes that work is now under way on the extension from the existing line at Montezuma, N. C., which has an altitude of 3,800 ft., via Grand Father mountain to Shulls Mills on Watauga river, 14 miles. The work is being carried out by H. C. McCrary, Knoxville, Tenn., and involves handling about 10,000 cu. yd. to the mile. The maximum grade

is 3½ per cent and the maximum curvature 22 deg. Some of the track has already been laid on the extension. The principal commodities the line will carry are lumber, bark and wood. The company now operates a 14-mile line from Pineola, northwest via Montezuma to Cranberry, where connection is made with the East Tennessee & Western North Carolina. (Nov. 5, p. 879.)

McCOMB & MAGNOLIA RAILWAY & LIGHT COMPANY.—See Mississippi Roads.

MISSISSIPPI ROADS (ELECTRIC).—Surveys are now being made by X. A. Kramer, Magnolia, Miss., it is said, for an interurban electric line to be built from Summit, Miss., south via McComb and Fernwood to Magnolia, about 12 miles. G. M. Walker, New York, is said to be interested. The McComb & Magnolia Railway & Light Company is said to have been incorporated recently with a capital of $500,000, by M. R. Walker, S. M. Jones and others.

MUSCATINE & IOWA CITY.—This company has been incorporated for the purpose of operating a railway between Muscatine, Iowa, and Iowa City. The capital is $400,000, of which $100,000 will be common, and $300,000 preferred stock.

NASHVILLE & EASTERN ELECTRIC.—An incorporator of this company is reported as saying that construction work will be started at once on an electric line from a connection with the Nashville, Chattanooga & St. Louis, at Lebanon, Tenn., southeast to Smithville, about 35 miles. The Myers Construction Company of Chicago is to build the line. (See Tennessee Roads, July 2, p. 39.)

NEW YORK SUBWAYS.—The New York Public Service Commission, First district, has approved the award by the New York Municipal Railway Corporation of a contract to Connors Brothers Company, Inc., the lowest bidder, at $726,168, for the construction of the second section of the new elevated railroad in Jamaica avenue. The work will include the erection of the steel work between Walnut street and Cliffside avenue, in the borough of Queens. (October 15, p. 714.)

The commission has approved the award of a contract by the New York Municipal Railway Corporation to the Charles A. Myers Contracting Company, Inc., for grading, removing existing tracks, laying new tracks and special work, installing contact rail and other electrical work, etc., in the improvements now being made by the company in the Fresh Pond yard in the borough of Queens. The contract amounts to $17,123.

Bids are wanted by the commission on November 23, for track installation on the White Plains Road extension of the existing subway. The White Plains Road extension is a three-track elevated line from the terminus of the Lenox avenue branch of the existing subway at One Hundred and Eightieth street, north to Two Hundred and Forty-first street, near the northern city boundry, in the borough of the Bronx.

OCILLA SOUTHERN.—The section of this road between Rochelle, Ga., and Hawkinsville, via Pope City, 25 miles, has been opened for business. (April 30, p. 955.)

OIL FIELDS & SANTA FE.—The connecting links of this road —from Pemeta, Okla., to Oilton, and from Pemeta to Drumwright, have been completed.

OREGON, CALIFORNIA & EASTERN.—Surveying work is now in progress on this road under the direction of N. H. Bogue. The maximum grade will not exceed 2 per cent, and the maximum curvature 8 deg. The grading cost is estimated at $6,000 per mile. Robert E. Strahorn, president, Portland, Ore. (October 22, p. 779.)

PIEDMONT & NORTHERN (ELECTRIC).—A contract is reported let to the Charlotte Construction Company, and work is now under way on the construction of a branch from Belmont Junction, N. C., to Belmont, four miles. A sub-contract for grading work is reported let to P. R. Huffstetler, Gastonia, N. C.

RAHWAY VALLEY RAILWAY.—This company is building, with its own forces, a one-mile branch from Morris avenue, Springfield, N. J., to Vauxhall Road.

SAPULPA & OIL FIELDS (ELECTRIC).—This road is being built from Depew, Okla., to Drumwright, a distance of 16.4 miles. Approximately 5 per cent of the grading has been completed under the direction of Joseph T. Lantry, superintendent of construction. About 25,000 cu. yds. of material is being handled per mile. J. A. Frates, general superintendent of the first district of the St. Louis & San Francisco, at Springfield, Mo., is president of the road. J. T. Lantry may be reached at Tulsa, Okla.

TEANAWAY LOGGING RAILWAY.—Incorporated in the state of Washington by the Cascade Lumber Company, which owns a large mill in North Yakima, Wash., and has extensive timber holdings in the Cascade mountains, to build a 12-mile logging road to connect with the Northern Pacific main line, also to build seven or eight miles of branches. R. E. Slaughter, president, Hudson, Wis.

TEXAS ROADS.—A proposition has been submitted to residents of Krum, Tex., and Denton for the construction of a short railroad between these two places, which would connect the Gulf, Colorado & Santa Fe with the Texas & Pacific. It is understood that work will be started on the line in the near future. E. P. Turner, Dallas and associates are back of the project.

TORONTO SUBURBAN (ELECTRIC).—Track has been laid, it is said, on the extension from Lambton, Ont., to Guelph, 46 miles, over the Humber river bridge, to the junction with the present line on Dundas street at Lambton park, and ballasting work is now under way. Sub-stations are also being put up at Georgetown and at Guelph and a car barn is being built at Lambton park. The company expects to let contracts for the catenary line equipment in the near future. (May 14, p. 1034.)

WISCONSIN & NORTHERN.—This road has been extended from Van Ostrand, Wis., north to Lily, 13.1 miles. (May 28, p. 1140.)

## RAILWAY STRUCTURES

ADEL, GA.—Construction work has been started on a new station in Adel, it is said, for the Georgia & Florida.

ARDMORE, OKLA.—The Oklahoma, New Mexico & Pacific has let a contract for a combination shop and engine house to Redpath & Co., of this city. The building will have a concrete foundation, galvanized iron sides and Genasco roof. Its dimensions will be 70 ft. by 80. About 70 per cent of the work has been completed, and the approximate cost is estimated at $6,000. W. J. Stoneburner, Ardmore, Okla., general superintendent; W. T. Buck, Ft. Worth, Tex., architect.

BELLEVILLE, ONT.—Application has been made by the Canadian Pacific for an order to elevate the tracks within the city of Belleville to allow for the construction of subways and for building an interswitching track with the Canadian Northern Ontario.

BELMONT, N. C.—According to press reports the Piedmont & Northern is planning to build a combined freight and passenger station at Belmont.

BROOKLYN, N. Y.—The New York Public Service Commission, First disrict, has denied the request of the New York Municipal Railway Corporation for permission to let the contract for the construction of the Coney Island terminal to the George W. McNulty Company without competitive bidding. (Nov. 5, p. 880.)

The commission has opened bids for the construction of station finish for 11 stations on the New Utrecht avenue elevated line in the borough of Brooklyn. (October 29, p. 829.)

COUNCIL BLUFFS, IOWA.—The Roberts & Schaefer Company, of Chicago, has been awarded a contract by the Chicago Great Western for a fireproof coaling plant of 100 tons capacity, to be a duplicate of the plant now being built for the railroad at Clarion, Ia.

DALLAS, TEX.—The Union Terminal Company is drawing up plans for a power plant, to cost about $40,000, and two signal towers, to cost $20,000. They will be of reinforced concrete and steel construction.

DARLING, ONT.—According to press reports a contract has been let to the Foundation Company, Montreal, Que., for building a bridge at Darling, on the Toronto-Sudbury line of the Canadian Pacific. The cost of the new structure will be about $50,000.

DERRY, PA.—The Pennsylvania Railroad will rebuild the engine house at Derry, at a cost of $35,000. This is a renewal of the present facilities, and the work will be carried to completion this year.

Freeport, Pa.—The Pennsylvania Railroad has given a contract to the Henry Shenk Company, Pittsburgh, Pa., for building a new freight station at Freeport.

Gallup, N. M.—The Atchison, Topeka & Santa Fe is preparing preliminary sketches for a combination depot, hotel, refectory and office building, to be approximately 250 ft. by 60 ft., and two stories in height.

Gray Bull, Wyo.—Fire damaged the Chicago, Burlington & Quincy roundhouse recently. Plans are being prepared to repair the building.

Mount Vernon, N. Y.—The New York Central has let to the R. H. Howes Construction Company, 105 West Fortieth street, New York City, the contract for a new passenger station in this city. Piles for the foundation are being driven, and work on the station proper will be begun within a few weeks. The building is to be modern Italian Renaissance, of rough texture brick, limestone trimmings and tile roof. This building is on the new four-track line (nearer the Bronx river than the present two-track line), which was begun over four years ago and which is just now being finished.

Nashville, Tenn.—The Nashville, Chattanooga & St. Louis, the Nashville Railway & Lighting Company and the city of Nashville will replace the present steel girder bridge over Cedar street, used as an overhead crossing by the railroad, it is said, with a concrete slab structure, to be about 78 ft. long. The old masonry abutments will be used as part of the new abutments. Plans for this improvement are being made by the railroad company's engineering staff, but the work will be carried out by contracts under the supervision of the city engineer.

Newkirk, Okla.—The Atchison, Topeka & Santa Fe has sent plans and specifications for a combination depot to prospective bidders. The building will be approximately 178 ft. by 43 ft., will have brick walls and tile roof, and will cost about $20,000.

Pilot Rock Junction, Ore.—The Oregon-Washington Railroad & Navigation Company has awarded a contract to the Roberts & Schaefer Company, of Chicago, for the construction of a 250-ton, standard counterbalanced bucket locomotive coaling station. The plant will be of reinforced concrete construction, and will be equipped to weigh all coal before passing it to tenders.

Regina, Sask.—An officer of the Grand Trunk Pacific is quoted as saying that this road expects to proceed with the construction early next spring, of the terminal facilities at Regina and at three other points in the province of Saskatchewan, under an agreement with the provincial government.

Springfield, Mo.—Fire of unknown origin destroyed the mill, shop and coach repair department of the St. Louis & San Francisco reclamation plant on November 2. Four passenger coaches were lost.

Taylorville, Ill.—A fire, which originated in the boiler room of the Chicago & Illinois Midland shops on November 4, destroyed the roundhouse, car shops, offices and storerooms. Two locomotives also were damaged. The company plans to replace the structures as soon as possible. The loss incurred is not definitely known, but it is estimated at from $65,000 to $80,000.

Windber, Pa.—New freight and passenger facilities for the Pennsylvania Railroad have been authorized for Windber, at an estimated cost of $42,000. The freight facilities will be separate from the passenger facilities. Bids have been received for the erection of a freight station, and the contract for this work will work will be undertaken on the passenger station.

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Norwegian State Railways.—The state railway construction in Norway is progressing on a very large scale, although some of the important work now in hand will not be completed at the time originally intended. Thus the Doore railway and the Rauma railway were to have been ready in 1917, but neither undertaking will be completed at that time. According to the railway plan of 1908 the railways which it comprised were calculated to cost $13,600,000, but the actual expenditure has now been put at $23,200,000. Alterations and further new lines, which have been decided on later, were calculated to entail an aggregate expenditure of $9,400,000, but they will, it has transpired, cost some $2,700,000 more than originally calculated.

# Railway Financial News

Birmingham, Endsley & Bessemer.—This property was sold under foreclosure recently and bought for $700,000 by J. D. Kirkpatrick, representing the bondholders' committee.

Chicago, Rock Island & Pacific.—N. L. Amster has been elected chairman of the executive committee, succeeding T. M. Schumacher. John G. Shedd, J. S. Morron, N. J. French, Charles Hayden, Charles G. Dawes and E. D. Hulbert are the other members of the executive committee.

Kansas City, Mexico & Orient.—An application has been made to the Kansas Public Utilities Commission for permission to issue $51,238,000 securities by a new company which is to take over the Kansas City, Mexico & Orient, now in the hands of receivers.

Lewisburg & Northern.—See Louisville & Nashville.

Louisville & Nashville.—This company has taken over the Lewisburg & Northern. The Lewisburg & Northern runs from Bentwood, Tenn., to the Alabama state line.

Missouri, Kansas & Texas.—All interest due November 1 on Missouri Pacific certificates was suspended, there being a provision for 30 days' grace in interest on the $19,000,000 6 per cent notes and six months' grace on the Missouri, Kansas & Texas extension 5 per cent bonds, the Missouri, Kansas & Oklahoma first mortgage 5 per cent bonds, the Dallas & Waco first mortgage 5 per cent bonds and the Boonville Railroad Bridge first mortgage 5 per cent bonds.

Southern Pacific.—Reports have been current for some time that a syndicate was being formed for the purchase of $38,292,400 Southern Pacific stock, which was sold by the Union Pacific to the Pennsylvania Railroad. The firms whose names have been connected with this syndicate by report are Kuhn, Loeb & Co., Hallgarten & Co., Hayden, Stone & Co. and Bernard M. Baruch. It is said that the Pennsylvania has not accepted any offer made by any syndicate so far.

The Muscatine & Iowa City.—As was briefly indicated last week, this company was incorporated under the laws of Iowa on October 25, and has leased from Chicago, Rock Island & Pacific the line that extends from Muscatine, Iowa, to Montezuma, 87.3 miles; the line from Thornburg, Iowa, to What Cheer, 4.7 miles, and the line from Iowa Junction, Iowa, to Iowa City, a distance of 11.8 miles. The Muscatine & Iowa City will take over this property on January 1, 1916, under a lease of 50 years, and will operate and maintain it exclusively, the Rock Island withdrawing all of its service. The new road will conduct freight, passenger, express, mail and all other forms of common carrier business, and will use for passenger service General Electric Company self-propelled gasolene electric motor cars of the G. E. type, R. E. 70-B-11, four of which have been ordered. For freight purposes gas electric locomotives of the G. E. type 404-G-114-4-GE-205-D will be used. Temporarily steam will be the motive power. The officers of the new corporation are as follows: A. D. Bowen, president; F. O. Block, vice-president; S. W. Mercer, vice-president; W. R. Jayne, secretary; E. L. McColm, treasurer; C. D. Van Hecke, general manager. The main offices of the company are in the Hershey building, Muscatine, Iowa.

Wabash.—The secretary of state of Missouri has declined to grant a license to the new Wabash Railway Company to operate in Missouri, on the ground that an act of the Missouri legislature of April, 1913, prohibits such operation unless the railroad is incorporated in the state. He has therefore returned to the company the check for $19,665, tendered in payment of the license fee. The secretary of state offered, however, to assist in having the matter presented to the courts in case the railroad is of the opinion that the statute is not applicable. President Kearney has announced that the decision of the secretary of state will not interfere with the operation of the road, and that probably action will be taken as soon as possible to test the law.

[ADVERTISEMENT]

# ANNUAL REPORT

## MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY COMPANY—TWENTY-SEVENTH ANNUAL REPORT

FOR THE FISCAL YEAR ENDED JUNE 30, 1915

**Including Chicago Division (Wisconsin Central)**

Submitted herewith is a report for the fiscal year ended June 30, 1915.

The Gross Earnings, Operating Expenses, Fixed Charges, Surplus, etc., are as shown in the following condensed statement.

| | Soo Line. | Chicago Division. | Soo Line System. |
|---|---|---|---|
| Gross Earnings | $17,817,855.04 | $9,945,369.76 | $27,763,224.80 |
| Operating Expenses | 11,059,594.21 | 6,751,779.60 | 17,811,373.81 |
| Net Earnings | $6,758,260.83 | $3,193,590.16 | $9,951,850.99 |
| Income from other sources | 1,043,965.49 | 61,280.75 | 1,105,246.24 |
| Total Income | $7,802,226.32 | $3,254,870.91 | $11,057,097.23 |
| Fixed Charges, Taxes, etc | 4,828,222.39 | 3,118,138.78 | 7,946,361.17 |
| Surplus Income | $2,974,003.93 | $136,732.13 | $3,110,736.06 |

Dealing with the entire system and comparing the year's results with those of the preceding year, the Gross Earnings decreased $1,542,997.79, Net Earnings decreased $112.90, and the Surplus Income decreased $260,462.26.

The decrease in Freight Revenue was $580,633.33, largely due to decreased shipments of lumber, manufactured iron, machinery, building materials and agricultural implements. Attention has been called in previous reports to the increase in live stock shipments; there was a further increase during the year. Shipments of iron ore also show an increase and with the development of the Cuyuna Range there should be a continued increase in shipments of this commodity.

The decrease in Passenger Revenue was $859,153.95, due to depressed business conditions, but it has been found impossible to materially reduce the passenger train expenses. Your attention is called to the fact that while the Passenger Revenue decreased thirteen per cent, the decrease in miles run by passenger trains was but five and one-half per cent.

Maintenance expense shows a decrease of $904,685.14. Owing to the decreased business handled our facilities have not been fully employed. The large expenditures in previous years for permanent bridge and road work and for new equipment have contributed to the reductions in Maintenance expenses.

Transportation expenses show a decrease of $466,075.90, caused partly by decrease in business handled. Every effort consistent with the safe conduct of the business has been made to reduce transportation expenses.

During the year the company purchased the railroad and property of the Fairmount & Veblen Railway Company, extending from Fairmount, North Dakota, to Grenville, South Dakota, a distance of 87 miles, and commenced operation of same July 1st, 1915. The company also purchased the railroad and railroad property of the Minnesota Northwestern Electric Railway Company, extending northeast from Thief River Falls, Minnesota, a distance of 18.55 miles. The Minnesota Northwestern Electric Railway Company will continue to operate the property under lease from this Company.

The only new construction in progress at this time is an extension

## MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY COMPANY GENERAL BALANCE SHEET

### ASSETS

| | | |
|---|---|---|
| **Property Investment:** | | |
| Road | $97,620,782.34 | |
| Equipment | 20,829,517.77 | |
| | $118,450,300.11 | |
| Less Reserve for Accrued Depreciation | 2,860,578.01 | |
| Total | | $115,589,722.10 |
| Miscellaneous Physical Property | | 271,952.45 |
| **Securities of Proprietary, Affiliated and Controlled Companies:** | | |
| Wisconsin Central Ry. Co. Stock | $3,658,337.09 | |
| Central Terminal Ry. Co. Stock | 1,380,000.00 | |
| Central Terminal Ry. Co. Bonds | 139,500.00 | |
| Belt Ry. Co. of Chicago Stock | 240,000.00 | |
| St. Paul Union Depot Co. Stock | 103,600.00 | |
| Minnesota Transfer Ry. Co. Bonds | 64,000.00 | |
| Western Express Company Stock | 50,000.00 | |
| Sainte Marie U. D. Co. Stock | 37,500.00 | |
| Minnesota Transfer Ry. Co. Stock | 7,000.00 | |
| New Jersey Bridge Construction Co. Stock | 500.00 | |
| Total | | 5,680,437.09 |
| **Miscellaneous Investments:** | | |
| First National Bank and Soo Line Building Company Stock | $375,000.00 | |
| Advances to First National Bank and Soo Line Building Company | 125,000.00 | |
| Coeur d'Alene & Pend d'Orielle Ry. Co. 5% Bonds | 25,200.00 | |
| Tri-State Land Company Stock | 25,000.00 | |
| Advances to Sainte Marie Union Depot Co. | 22,776.31 | |
| Pillsbury-Washburn Flour Milling Co., Ltd., 5% Bonds | 4,700.00 | |
| Miscellaneous Stocks | 376.00 | |
| W. C. Ry. Co. Equipment Contracts | 1,851,500.80 | |
| Total | | 2,429,553.11 |
| **Working Assets:** | | |
| Cash | $6,048,447.00 | |
| Traffic and Car Service Balances due from other companies | 149,522.22 | |
| Net Balances due from Agents | 1,225,403.11 | |
| Misc. Accounts and Bills Receivable | 774,816.64 | |
| Material and Supplies | 2,027,997.86 | |
| Total | | 10,226,186.83 |
| **Accrued Income Not Due:** | | |
| Unmatured Dividends | $111,696.00 | |
| Unmatured Interest | 20,370.39 | |
| Accrued Income from Lease of Road | 1,558.34 | |
| Total | | 133,624.73 |
| **Deferred Debit Items:** | | |
| Tri-State Land Co | $1,248,287.14 | |
| Land Sales (Deferred Payments) | 80,000.00 | |
| Other Deferred Debit Items | 99,830.80 | |
| Working Funds | 51,374.18 | |
| Unextinguished Discount on Securities | 642,550.04 | |
| Total | | 2,122,042.16 |
| **Grand Total** | | $136,453,518.47 |

### LIABILITIES

| | | |
|---|---|---|
| **Capital Stock:** | | |
| Common | $25,206,800.00 | |
| Preferred | 12,603,400.00 | |
| Total | | $37,810,200.00 |
| **Mortgage, Bonded and Secured Debt:** | | |
| First Mortgage M. & P. Ry. Co. 4% Bonds | $286,000.00 | |
| First Mortgage M. S. S. M. & Atl. Ry. Co. 4% Bonds | 8,136,000.00 | |
| First Consolidated Mortgage M. St. P. & S. S. M. Ry. Co. 4% Bonds | 56,863,000.00 | |
| First Consolidated Mortgage M. St. P. & S. S. M. Ry. Co. 5% Bonds | 2,637,000.00 | |
| Second Mortgage M. St. P. & S. S. M. Ry. Co. 4% Bonds | 3,500,000.00 | |
| Fairmount & Veblen Ry. Co. Second Mortgage 6% Bonds | 14,450.00 | |
| Equipment Trust Obligations | 6,075,000.00 | |
| Total | | 77,511,450.00 |
| **Working Liabilities:** | | |
| Traffic and Car Service Balances due to Other Companies | $322,017.44 | |
| Audited Vouchers & Wages Unpaid | 2,531,435.93 | |
| Miscellaneous Accounts and Bills Payable | 491,940.02 | |
| Matured Interest and Dividends Unpaid | 2,139,686.50 | |
| Total | | 5,485,079.89 |
| **Accrued Liabilities not Due:** | | |
| Unmatured Interest | $132,819.32 | |
| Taxes Accrued | 417,126.42 | |
| Total | | 549,945.74 |
| **Deferred Credit Items:** | | |
| Operating Reserve | $189,034.08 | |
| Insurance Fund | 78,904.67 | |
| Other Deferred Credit Items | 78,308.39 | |
| Total | | 346,247.14 |
| Profit and Loss | | 14,750,595.70 |
| **Grand Total** | | $136,453,518.47 |

**Contingent Liabilities:**

| | |
|---|---|
| As joint maker with the Central Terminal Railway Company of Illinois of Bonds secured by mortgage on property of the Central Terminal Railway Company | $6,000,000.00 |
| 4% Leased Line Certificates of the Minneapolis, St. Paul & Sault Ste. Marie Railway Company, issued in exchange for Preferred Stock of the Wisconsin Central Railway Company, held therefor | 11,169,600.00 |

from Van Hook, North Dakota, to the Missouri River, a distance of ten miles.

During the year there has been expended for Additions and Betterments $723,829.64.

Equipment changes amounting to $72,230.66 are fully shown in detail on pages 26 and 43.

The Company purchased 400 forty-ton capacity steel frame box cars and 100 forty-ton capacity steel frame automobile cars, which were delivered during August, 1915, and six switching locomotives for delivery in December, 1915.

The outstanding funded debt was increased during the year by the sale of

| | |
|---|---|
| Minneapolis, St. Paul & Sault Ste. Marie Railway Company First Consolidated Mortgage Five Per Cent Bonds | $2,637,000.00 |
| Wisconsin Central Railway Company, Three Year Five Per Cent Secured Gold Notes | 1,000,000.00 |
| | $3,637,000.00 |

The outstanding funded debt was decreased during the year by the retirement of

| | |
|---|---|
| Minneapolis, St. Paul & Sault Ste. Marie Ry. Co.: | |
| Equipment Trust Obligations | $982,000.00 |
| Wisconsin Central Railway Company: | |
| Equipment Trust Obligations | 367,500.40 |
| First General Mortgage Bonds | 12,000.00 |
| M. & S. E. Div. P. M. M. Bonds | 5,000.00 |
| | $1,366,500.40 |

During the year the Company has continued its efforts to assist in the development of the territory tributary to its lines. The results have been exceedingly satisfactory.

The Northwestern States have an excellent grain crop this year. This should produce considerable increase in tonnage and if general business conditions improve the results for the current fiscal year should show much improvement. The property is in condition to economically handle a largely increased business.

Respectfully submitted,
E. Pennington,
President.

## MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILWAY COMPANY

### OPERATING REVENUES AND EXPENSES

| | | |
|---|---|---|
| *Revenue from Transportation:* | | |
| Freight Revenue | $12,576,373.74 | |
| Passenger Revenue | 3,810,891.36 | |
| Excess Baggage Revenue | 43,099.61 | |
| Sleeping Car Revenue | 259,366.53 | |
| Parlor and Chair Car Revenue | 9,384.00 | |
| Mail Revenue | 431,929.61 | |
| Express Revenue | 328,948.48 | |
| Other Passenger Train Revenue | 338.60 | |
| Switching Revenue | 54,025.59 | |
| Special Service Train Revenue | 2,499.74 | |
| Total Revenue from Transportation | | $17,516,857.26 |
| *Incidental Operating Revenue:* | | |
| Dining and Buffet Car Revenue | $91,879.10 | |
| Station and Train Privileges | 9,904.30 | |
| Parcel Room Receipts | 1,112.50 | |
| Storage Freight | 6,210.61 | |
| Storage, Baggage | 1,927.03 | |
| Demurrage | 29,379.87 | |
| Telegraph Service | 97,457.46 | |
| Rents of Buildings and Other Property | 46,499.19 | |
| Miscellaneous | 5,801.87 | |
| Total Incidental Operating Revenue | | $290,171.93 |
| Joint Facilities Revenue | | 10,825.85 |
| Total Operating Revenues | | $17,817,855.04 |
| *Operating Expenses:* | | |
| Maintenance of Way and Structures | $2,096,306.62 | |
| Maintenance of Equipment | 2,724,035.79 | |
| Traffic Expenses | 337,332.22 | |
| Transportation Expenses | 5,495,980.27 | |
| Miscellaneous Operations | 92,537.00 | |
| General Expenses | 384,839.90 | |
| Transportation for Investment—Cr. | 71,437.59 | |
| Total Operating Expenses | | $11,059,594.21 |
| Net Operating Revenue | | $6,758,260.83 |

### INCOME ACCOUNT, FISCAL YEAR ENDED JUNE 30, 1915

| | | |
|---|---|---|
| Net Operating Revenue | | $6,758,260.83 |
| Taxes Accrued | | 1,135,439.31 |
| Operating Income | | $5,622,821.52 |
| Other Income: | | |
| Dividends on Stock Owned | $465,328.00 | |
| Hire of Equipment | 275,995.52 | |
| Interest and Discount | 115,901.27 | |
| Rents Receivable | 76,734.77 | |
| Interest on Wisconsin Central Railway Equipment Contracts | 93,966.60 | |
| Interest on Bonds Owned | 14,636.68 | |
| Premium on Funded Debt | 1,402.65 | |
| Total Other Income | | 1,043,965.49 |
| Gross Income | | $6,666,787.01 |
| Deductions from Gross Income: | | |
| Interest on Bonds | $2,795,289.44 | |
| Interest on W. C. Ry. Leased Line Certificates | 446,784.00 | |
| Interest on Equipment Notes | 299,109.15 | |
| Rental of Terminals | 151,600.49 | |
| Total Deductions from Gross Income | | 3,692,783.08 |
| Net Income | | $2,974,003.93 |

### PROFIT AND LOSS ACCOUNT TO JUNE 30, 1915

| | | |
|---|---|---|
| By Balance June 30, 1914 | | $14,576,889.82 |
| Net Income for Year Ended June 30, 1915 | | 2,974,003.93 |
| | | $17,550,893.75 |
| Additions for Year: | | |
| Unrefunded Ticket Overcharges | $1,061.40 | |
| Interest Items | 14,336.68 | |
| | | 15,398.08 |
| | | $17,566,291.83 |
| Deductions for Year: | | |
| 7 per cent Dividend on Preferred Stock | $882,238.00 | |
| 7 per cent Dividend on Common Stock | 1,764,476.00 | |
| Extinguishment of Discount on Bonds and Equipment Notes | 35,269.06 | |
| Loss on retired Road and Equipment | 133,713.07 | |
| | | 2,815,696.13 |
| Balance Credit June 30, 1915 | | $14,750,595.70 |

### OPERATING REVENUES AND EXPENSES

Wisconsin Central Railway Company

("Soo Line," Chicago Division)

| | | |
|---|---|---|
| *Revenue from Transportation:* | | |
| Freight Revenue | $7,237,915.51 | |
| Passenger Revenue | 1,994,824.13 | |
| Excess Baggage Revenue | 20,415.28 | |
| Parlor and Chair Car Revenue | 6,332.72 | |
| Mail Revenue | 138,993.91 | |
| Express Revenue | 177,311.66 | |
| Other Passenger Train Revenue | 343.19 | |
| Milk Revenue on Passenger Trains | 140,287.17 | |
| Switching Revenue | 58,578.17 | |
| Special Service Train Revenue | 925.94 | |
| Other Freight Train Revenue | 1,648.00 | |
| Total Revenue from Transportation | | $9,777,575.68 |
| *Incidental Operating Revenue:* | | |
| Dining and Buffet Car Service | $60,369.00 | |
| Station and Train Privileges | 4,142.86 | |
| Parcel Room Receipts | 234.90 | |
| Storage, Freight | 4,812.60 | |
| Storage, Baggage | 176.06 | |
| Demurrage | 36,179.49 | |
| Rents of Buildings and Other Property | 12,579.48 | |
| Miscellaneous | 46,133.49 | |
| Total Incidental Operating Revenue | | 164,627.88 |
| Joint Facilities Revenue | | 3,166.20 |
| Total Operating Revenues | | $9,945,369.76 |
| *Operating Expenses:* | | |
| Maintenance of Way and Structures | $1,211,190.20 | |
| Maintenance of Equipment | 1,252,717.68 | |
| Traffic Expenses | 260,188.96 | |
| Transportation Expenses | 3,734,414.83 | |
| Miscellaneous Operations | 76,611.69 | |
| General Expenses | 225,586.06 | |
| Transportation for Investment—Cr. | 8,929.82 | |
| Total Operating Expenses | | 6,751,779.60 |
| Net Operating Revenue | | $3,193,590.16 |

### INCOME ACCOUNT, FISCAL YEAR ENDED JUNE 30, 1915

Wisconsin Central Railway Company

("Soo Line," Chicago Division)

| | | |
|---|---|---|
| Net Operating Revenue | | $3,193,590.16 |
| Taxes Accrued | | 667,614.10 |
| Operating Income | | $2,525,976.06 |
| Other Income: | | |
| Interest and Discount | $28,469.10 | |
| Interest on Bonds Owned | 520.00 | |
| Rents Receivable | 32,291.65 | |
| Total Other Income | | 61,280.75 |
| Gross Income | | $2,587,256.81 |
| Deductions from Gross Income: | | |
| Interest on Bonds | $1,551,887.21 | |
| Interest on Equipment Notes | 106,735.95 | |
| Rentals of Terminals | 657,399.99 | |
| Hire of Equipment | 134,501.53 | |
| Total Deductions from Gross Income | | 2,450,524.68 |
| Net Income | | $136,732.13 |